INSPIRING SUBNATIONAL CLIMATE ACTION

Cases and lessons from regional governments

nrg4SD

Network of Regional Governments for Sustainable Development

With support of

ORU FOGAR ORGANISATION DES RÉGIONS UNIES

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Introduction

France will host the 21st Conference of the Parties to the UNFCCC in Paris in December 2015. Member-States are expected to reach an agreement towards a new, universal and legally binding climate regime, able to limit global warming below 2°C. The mobilisation of non-state actors is one of the key features for this COP's success. Subnational governments, in particular, will support the future climate regime and commit to actively contribute to its implementation.

It is now widely acknowledged that subnational governments such as regions, states and provinces are key players on the ground to limit and tackle efficiently climate change. 50% to 80% of adaptation and mitigation actions necessary to tackle climate change are or will be implemented at the subnational or local levels. Responding to this challenge, subnational governments from all over the world have been demonstrating that their contribution and leadership is essential to help achieve the ultimate objectives of the UNFCCC.

Continuing those efforts, the Network of Regional Governments for Sustainable Development (nrg4SD) and its members present this compilation of case studies aiming at contributing to the UNFCCC COP 21 and beyond. This compilation also benefited from the support of the United Regions Association (ORU-FOGAR) and its members. The cases included in this compilation provide innovative and ambitious climate solutions that have proven to be efficient at the subnational level. The objective of this initiative is to convene a suite of case studies that can serve of inspiration not only to other sub-nationals but also to different governmental levels, such as States and locals.

To facilitate a comparable exchange across a diverse set of initiatives taking place in each region, members were asked to share their case studies along the following key topics:

- Forests and climate change.
- Mobility and transports.
- Education, mobilisation, awareness raising towards climate action.
- Energy generation, distribution and consumption.
- Low carbon economy and jobs.
- Agriculture and climate change.
- Decentralised cooperation and territorial partnerships within climate action.
- Financing.
- Adaptation to climate change.
- Territorial planning and climate change.

We hope that these examples from around the world inspire action for improved subnational climate action.

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GOSSAS • SENEGAL

The forest action plan

A loss of forest cover (40,000ha/year as per FAO) has been noted in Senegal and these are the essential causes: a climate recession observed over the last few decades, anthropogenic actions such as bush fires, the extension of agricultural land, and the pressure exerted by forest operations. Wood fuel (wood and charcoal) represents 60% of all household energy consumption, which is far ahead of oil products, electricity and agricultural waste. The risks for the environment are real and serious. They threaten all rural production systems and household provisioning of domestic fuel. In view of this situation, the Departmental Council of Gossas committed to take serious efforts in order to reverse these trends at the Malka forest reserve. Gossas begun to develop this project along with the forestry service as it is the only green lung in the territory.

The re-updating of the forestry action plan indicates the effective responsibility of local governments in managing and exploiting the forest resources in their territories, and ensures their sustainability. In fact, experience has proven that forests cannot be considered as well-managed unless they are developed by and for the people. This is known as participatory forest development.

It is, however, appropriate to specify that the forestry plan is only in the initial stage and only a few preliminary actions have been implemented to date. The major challenge has been the lack of forestry-related funds. In fact, the budget item dedicated to the environment and forestry is not well provisioned. Gossas is searching for technical and financial partners that can support the Departmental Council meeting the objectives defined in its forestry action plan.

The planned actions are:

- Participatory development of 750 ha of the Malka forest reserve.
- Forest mapping and delimitation.
- Creation of forest management structures (village and inter-village committees).
- Creation of 10 community forests and village woodlands/year.
- Delimitation of areas to be used for village woodlands.
- Training and awareness for elected officials and stakeholders.
- Reforestation of 100 ha of forest land/year.
- Production of plants at nurseries.
- Establishment of reforestation committees.
- Distribution of 1000 fuel saving stoves/year.
- Training for artisans/blacksmiths on how to produce fuel saving stoves.
- Distribution of stoves to rural households.

So far, the achieved results have been:

- Forest mapping and delimitation: 750 ha of the Malka across 12 neighbouring villages, where the main wood species are found.
- Reforestation of 50 ha by the Departmental Water and Forestry Service with support from the Departmental Council.
- Establishment of village committees and inter-village committees to manage the forest.
- Training for local elected officials, especially members of the communal environmental commissions.
- Recruitment of a forest leader responsible for the social work involved with drafting a participatory forest development plan.
- Creation of 2 village woodlands.

Contribution to the conservation of biodiversity:

- Enable the re-appearance of plant and animal species such as hyenas and warthogs.
- Sequestration of 13,500 t of CO_2 eq per year, reinforcing mitigation efforts.

Contribution to capacity building:

- Train local elected officials.
- A leader in each rural community will be trained on forest management.
- Train, inform and support the community through the village and inter-village forest management committees.

Contribution to economic and social development:

- 7 leaders will be recruited by the Communes and will earn monthly salaries.
- Generate revenue for the poorest families.

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MORONA SANTIAGO • ECUADOR

The Tarimiat plan

The Amazonian province of Morona Santiago has been working since 2009 on a project of alternatives to development. The reference is Tarimiat, which means full life, or good living. We are a people of warriors and survivors, the Shuar and Achuar, and together with the mestizo people we share a territory of 24,054 km^2. The forest is like a mother, protecting oil and mining reserves in its enormous entrails. However, to many people, the fast flowing rivers are seen as enormous hydroelectric projects; our territory is valued only for its material wealth; thus its exploitation is justified under the guise of development. We resist extractivism and irrational progressivism, which affects our Amazonia. The strength of the province is its social organisational structure. Through popular elections a representative from the Shuar people, Marcelino Chumpi J., won the Prefecture. The political principle of the administration is to construct a public co-administration with social actors and organisations, which reflects the people's ancestral vision of the world, looking into the past to plan the future. The Tarimiat territorial development plan is based on this perspective.

The main actors of the Tarimiat Plan are social organisations. The basic unit is the centre, which has a community representative, and the steering group. The group of communities is called Association. The organisation of several Associations forms the Federation, which is run by a President and its governing board. These are:

- **The FICSHE:** Interprovincial Federation of Shuar Communities of Ecuador, created in 1964, with 70,000 inhabitants (45% of the population), and comprising 500 centres, spreading over 29,8% of the territory.
- **The NAE:** Achuar Nationality of Ecuador, created in 2005 in Morona Santiago, with 8603 people, 12 associations and it extends over 14% of the territory.
- **NASCHE:** Shuar Nationality of Ecuador, created in 1960 with 11 associations and a population of 18,000 inhabitants, covers 10% of the territory of the province.

The three federations compose the inter-federation committee, with a rotating presidency, set up in 1998. The objective is to produce proposals, initiatives and actions that benefit its members. As an organisational space, it has been strengthened around the construction of the Tarimiat territorial plan. In order to manage issues relating to public policies and institutional decisions, it has been extended and it includes the first two elected authorities – Prefect and Vice-prefect – and the Provincial Coordinator of Pachakutik – a political movement – becoming the Special Provincial Commission, called and managed by the latter.

The Tarimiat promoted a discussion process over the last five years, territorialised by the communities and associations, and approved in the inter-federation committee and the special commission. A system of social participation was developed (regulation/ordinance) which is framed within the management model that responds to the province's territorial reality and is based on the principle of "ordering by obeying", that is, the decision is in the hands of the communities. Through this process Morona Santiavo has moved from developmentalist and colonial thinking into an authentic economic, politic and social cultural model. Challenges when implementing the actions include:

- Constructing a strategy against the prevailing ideology.
- Promoting a full, productive, contemplative and reflexive life (good living) by re-interpreting the interculturality and plurinationality of the province.
- Interrupting the guided planning standards from the national state.
- Constructing new indicators (thresholds) in agreement with territorial weighting.

The entire population is benefiting of the programme and the organisational structure of the Province has also been strengthened.

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SÃO PAULO • BRAZIL

The riparian forest programme

Riparian forests are essential for the maintenance of adequate ecologic balance. They offer protection to water and soil, reducing the silting of rivers, lakes and dams and preventing the discharge of pollutants into the aquatic environment. Protecting the vegetation surrounding these water bodies is thus fundamental to safeguard water resources. In addition, riparian forests create corridors that contribute to the conservation of biodiversity; provide food and shelter to fauna; build natural barriers against the dissemination of plagues and agricultural diseases; and absorb and retain carbon dioxide during their growth.

The Riparian Forest Programme was established in 2014 through the State Decree No. 60.521, being executed in coordination with other actions developed by the Secretariat for the Environment aiming at the recovery of riparian forests across the whole São Paulo State territory. The Programme has the scope of recovering about 20 thousand hectares (corresponding to 40 million seedlings), and its projects are developed with public and private investments. Actions are initially targeted at priority intervention areas in the Alto Tietê, Paraíba do Sul and Piracicaba Capivari-Jundiaí watersheds, which concentrate over 30 million inhabitants. A standard unit (known as "Equivalent Tree") has been established to represent liabilities (forest replacement obligations) and assets (restoration projects), considering the equivalence in environmental importance. This enables prioritizing the recovery of areas with greater relevance to the conservation of water and biodiversity.

In the Piracicaba-Capivari-Jundiaí watershed, for example, the Piracaia Project was developed with the support of the São Paulo State Secretariat for the Environment in one of the four main reservoirs of the Cantareira System. This project, whose goal is to plant 350 hectares in the surroundings of the homonymous reservoir, results from a partnership between the Secretariat for the Environment, a local cooperative society ("Ambiência Cooperativa de Trabalho para Reflorestamento Ambiental da Represa de Piracaia e Região") and The Nature Conservancy NGO.

The goal to be achieved by the programme is to expand the protection and conservation of water resources and biodiversity by optimizing and focusing public and private investments in the:

• Protection and recovery of riparian forests, springs and waterholes.

São Paulo Governor Geraldo Alckmin and State Secretary for the Environment, Patrícia Iglecias, during the inauguration of the first project within the Riparian Forest Programme

• Protection of groundwater recharge areas.

• Expansion of the native vegetation coverage near springs, especially in water supply catchment areas.

• Planting native trees and improving the management of productive systems in watersheds and spring areas.

The following steps will be carried-out:

• To select and register ecological restoration projects in water supply catchment areas.

• To identify direct investments to finance registered projects, including:

– Reforestation of new areas with funds deriving from the payment of environmental liabilities;

– Voluntary projects for emissions or water footprint compensation;

– Financial incentives in the form of payment for environmental services.

Monitoring the implementation of the projects has been a challenge, since its success of reforestation projects depends on the monitoring of areas during a relatively long period of time, between five and ten years. Normally the implementing parties do not include the monitoring costs in the project. However, if such monitoring is not properly executed, the reforestation is not effective.

Currently, there are two projects under implementation, one in Piracaia and other in Jacareí. They are under the responsibility of the Secretariat for the São Paulo State Government. The Secretariat for the Environment works as Executive Focal Point and other State Secretariats are also involved, such as Secretariat for Energy Affairs and Secretariat for the Development. Additionally, the programme foresees the participation of private companies (as financers), NGOs and other entities, depending on the project.

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WALES • UNITED KINGDOM

10 Million Tree Planting Project

The 10 Million Tree Planting Project is a partnership between Wales in the UK and Mbale in Uganda. The aim of the project has been to create dozens of community based tree nurseries to promote tree planting across the Mbale region. With a focus on poverty alleviation, climate change adaptation and food security the project has sensitised thousands of farming families to the many benefits of agroforestry. Over the course of the 5-year project the partners have seen a rapid rise in community demand for seedlings as a result of their high profile work. Climate/weather related disasters such as landslides, storms and flooding have given the issue of climate change adaptation and mitigation a higher profile and some urgency during this period.

10 million trees will be planted over the coming years – drawing in new communities and new partners. The Welsh Government, as well as sourcing funding provides technical support to the project are investigating the possibility and feasibility of introducing a carbon finance scheme to further incentivise farmers to plant and grow trees to maturity. Carbon finance may prove to be essential to secure the success of the project by supplying funds for the partners to acquire further materials and training as well as providing the necessary direct inducement for farmers to sustain the trees over the years.

The Welsh Government has also extended its innovative PLANT! scheme to the project. The Welsh Government has planted a tree in Wales for every child born or adopted in Wales since 2008. From April 2014 an additional tree has been planted in Mbale as part of this project. The parents of each of the c. 35,000 babies born each year receive a certificate showing where their trees were planted. The Size of Wales project will help raise funds for the planting and will continue to publicise the progress of the project to its thousands of supporters in Wales, the UK and around the world.

The trees planted by this project are mostly agro-forestry trees that grow well with agricultural crops as well as nitrogen fixing in the soil. They are drought resistant and they include Grevillea robusta (Silk oak), Maesopsis eminii (Musizi) Cordia abbysinica (Cordia), Acrocupus and Fruit trees. They make up 80% of all tree species planted by the project.

For short-term use or benefits the following species have been integrated; Calliandra, Leuceauna, Sesbania shrubs or trees. These are harvested for firewood, fodder and poles so as to allow the long-term trees to establish and grow to provide environmental benefits and soil stability.

In terms of challenges encountered when implementing the actions, a great deal of sensitisation was initially required in order to convince people of the need to plant trees. Changing weather patterns have meant hotter and longer dry seasons with more intense rainfall in the wet seasons leading to landslides which have claimed many lives. Spikes in temperature have greatly increased the intensity of disease and pest attacks.

Achieved results include over 2 million trees planted so far tens of thousands of poor farmers have now benefited from the project with support and advice on agroforestry techniques and free trees. Several thousand lorena type fuel efficient stoves have been built in the kitchens of project partners which not only use much less fuel but also dramatically reduce the smoke in the kitchen which causes so many eye and respiratory problems.

The action is benefiting subsistence farmers and their families in the Mbale, Manafwa and Bududa districts of Eastern Uganda.

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RIO DE JANEIRO • BRAZIL

RIO 2016 Olympic and Paralympic Carbon Footprint offset: Fair Play Program

The State Government of Rio de Janeiro committed to offset the carbon footprint of the Olympic and Paralympic RIO 2016 events, with the aim of strengthening and accelerating protection, conservation, restoration and environmental programs.

The initiative is being implemented by the Government of State of Rio de Janeiro, through the State Secretariat of Environment and the State Environmental Institute. Partner Institutions include the State Secretariat of Agriculture and Livestock, through the Agricultural Research Company of the State of Rio de Janeiro (PESAGRO RIO), the Office of the Civil House Project Management, the Olympic Delivery Authority, and non-governmental organizations (Lion Tamarin Association gold, the SOS Atlantic Forest Foundation and the Earth Institute of Environmental Preservation and landowners).

The ex-ante inventory of the Olympic and Paralympic Footprint RIO 2016 calculated emssions at 3.48 million tCO2e. This resulted in a spatial, environmental analysis and registration of 2,500 hectares voluntarily submitted by landowners to forest restoration.

The Fair Play Program has been effective in:

- promoting the restoration of 1.448 hectares of degraded areas using about 5,2 million trees of native species of Atlantic Forest mixed with rubber trees (Hevea brasiliensis) where appropriated, favoring sustainable production through mixed stands of native species with commercial interest;
- increasing rural productivity from the exploitation of non-timber products;
- structuring and strengthening of the productive chain of forest restoration;
- creating hundreds of direct jobs;
- recovering springs and riparian forests;
- mitigating the silting process of rivers;
- restoring the landscape through the connection of isolated forest fragments;
- restoring biodiversity through corridors and stepping stones functionally linking protected areas and private lands;
- improving air quality and the microclimate conditions;
- offsetting GHG emissions;
- optimizing public and private efforts;
- strengthening local production and family farming;
- disseminating good environmental practices, as well as restoration technology.

These actions have directly benefited landowners, public institutions interested in environmental compliance, and private companies interested in the adequacy of its environmental obligations from the access of eligible areas for the restoration. Landowners using rubber trees and the rural workers are also benefited from the exploitation of non-timber products (latex and annual crops in agroforestry intercropping systems with native species of the Atlantic Forest biome), promoting the generation of employment and income in the area rural.

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Connectivity between forest fragments protected area União Biological Reserve and the area proposed by the Ministry of Environment for its expansion.
Restoration of degraded areas with agrosilvipastoris systems.
Intercropping planting Hevea brasiliensis - rubber, annual crop - pepper, native species of the Atlantic Forest biome and use of laying hens.

RIO DE JANEIRO • BRAZIL

National Forest Inventory in the State of Rio de Janeiro

The state of Rio de Janeiro is inserted in the Atlantic Forest biome, considered a biodiversity hotspot. With 4,378,172 hectares territory, the State has about 20% of forest covering with a high level of fragmentation. Information such as the structure, diversity, extension, carbon storage, soil types and uses of these forests are not completely known and are essential to the formulation of public policies for sustainable use and conservation of the State's biodiversity.

In order to account for this patrimony, the State Secretariat of Environment, the Brazilian Forestry Service and The Food and Agriculture Organization (FAO) of the United Nations are implementing a national forest inventory in the state of Rio de Janeiro. Moreover, Brazil, as member of the Convention on Biological Diversity, has commitments to conservation and sustainable use of biodiversity, and their knowledge is fundamental and should be based on science and traditional knowledge, generating shared benefits.

The sampling grid consists of an array of 282 points spread out in the entire state equally spaced at 20 km with higher density in some areas to ensure associated ecosystems such as mangroves and salt marshes are represented. As for botanical collections, all collected material is sent to the Rio de Janeiro Botanical Garden where the whole process of identification and processing takes place. So far, 139 points were visited and materials collected (49%).

Preliminary results show that 50% of Rio de Janeiro state territory has been sampled, 5,392 plants collected from these, about 5.057 were processed and identified being 1.898 at family level, 466 at genus and 2.693 at species level. The 5.392 collected plants are distributed in 141 different botanical families. The most representative families are Fabaceae (707), Myrtaceae (567), Lauraceae (247) and Rubiaceae (243). Ditaxis gardineri (Euphorbiaceae) and Parianella carvalhoi (Pocaceae) constitute new occurrences marked for the State of Rio de Janeiro, and 37 species listed endangered risk categories on the national and international Red Lists.

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GOIÁS • BRAZIL

Payment for Environment Services and Climate Regulation: a legal framework for forest, people, market and government

The state of Goiás created a legal framework on climate change and forest as the next step to its general climate change Policy (2009), a pioneer policy previous to the Brazilian national policy. Goiás aimed at protecting the Cerrado biome: a highly threatened tropical savanna that originally covered the central lands of Brazil and almost entirely the state territory. Therefore, the state supported by a GEF (Global Environment Fund) grant for Cerrado conservation and hired consultancy services to elaborate a legal framework capable of ensuring forest conservation, climate regulation, and other environmental services.

The development of the policy development included:

• A preparatory stage aiming at understanding (a) what is the legal autonomy of a state (subnational governments) to legislate on the matter; (b) what were the legal gaps to be addressed by the new law; (c) how was the economic structure of Goiás and how carbo-intensive it was; (d) possible links of Goiás deforestation and the expansion of its economy; and (e) whether the economic incentives of Goiás were affecting to the Cerrado conservation.

• A second stage to assess the capacity of Goiás to develop a public policy based on market mechanisms to both promote Cerrado conservation and climate regulation, focusing on economic and financial market-based mechanisms applied to a system of payment for environmental services (PES).

• A third stage where, after drafting the law, it was necessary to establish business strategies to check the economic feasibility of the public policy proposed –for both investors and beneficiaries.

Several challenges were faced:

• First, the public budget of the state of Goiás was not enough to finance environmental conservation in all its areas: forest, water, biodiversity, climate, land- and the set of environmental services they provide.

• Second, it was necessary that the law: (1) was focused on the environmental target or service addressed by each PES program; (2) identified the community, payers and donors involved; and (3) informed all the stakeholders on the financial amount required to carry out the program.

In addition, each thematic program needed to be related to the conservation targets set by the existing legal frameworks. That required high transparency levels, and a common work of the government and the civil society to clarify: (a) what needed to be protected in the environment and to what extent; and (b) the extent of the financial effort required carrying out the protection of a target.

The action was promoted by the Secretariat for the Environment and Water Resources of the State of Goiás (SEMARH), with the support of the GEF grant and the World Bank, as an implementing agency in Brazil. SEMARH elaborated the Terms of Reference (ToR) and hired the consultancy services through public bidding in accordance with the World Bank guidelines.

Along the process, we found difficulties in finding adequate tenders and proposals in the bidding process that would represent a satisfactory team of consultants with previous experience in the topics involved. We also found it difficult to ensure that each contractor could elaborate a draft law suitable for the Legislative Assembly of Goiás.

The results were very successful. The selected team of consultants provided a satisfactory job, under close coordination and dialogue with SEMARH staff, who gave full support by providing all available data and information from the state of Goiás. Two on-site and one we public consultation website were created.

The business strategy approved the public policy feasibility. As a result of the policy, the following will be benefited: addressees of each PES program, payers, public bodies, civil society, and the environment.

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BASQUE COUNTRY • SPAIN

The CFA-EFFIPLAT project: a network for the promotion and development of a sustainable Atlantic freight corridor

The objective of the CFA-EFFIPLAT project is the promotion and development of the Atlantic corridor for freight from an integrated transport viewpoint, favouring its interconnection with ports and multimodal logistics platforms in the Atlantic Arc through the creation of a transnational network including public authorities, rail, logistics and port operators (public and private), with a shared interest in the improvement of rail and intermodal transport in the Atlantic corridor for freight.

The Basque Government leads the actions with the collaboration of 11 partners: Port of Passaia, Government of Galicia, NASUVINSA, Foundation Centro Tecnologico Logistica Integral of Cantabria, University of Cantabria, Conseil Regional de Aquitaine, Conseil Regional de Bretagne, Irish Exporters Association, Basque Cluster on Mobility and Transport, and IBK Advisers.

The project action plan comprises the following actions:

• The legal establishment and the commissioning of a transnational network designed to develop activities and get partners to remain beyond the execution of the current project.

• Analysing the monitoring of the infrastructure-related actions envisaged for the Atlantic Rail Corridor in the different existing planning instruments or under elaboration (European, national).

• Analysis and diagnose of the current technical situation of the railway network making up the Atlantic Rail Corridor.

• Improving the current situation and the forecasts included in planning tools.

• An analysis of the corridor from the perspective of intermodal services.

• Improvement of the optimisation of multimodal platforms and the current intermodal services.

• The definition of new, efficient and competitive intermodal services from the perspective of the multimodal logistics platforms.

The expected results for the project are:

In terms of communication and organisation of the network:

• Permanent network as a meeting point for all stakeholders

• Website for further cooperation among the agents in the logistics chain

• Definition and launch of viable freight transport services

In terms of infrastructures and projects:

• Atlantic logistics community for stakeholders to propose improvement measures and projects.

• Quality & efficient infrastructure for multimodal platforms along the Atlantic Arc.

• Contribution to sustainability objectives.

In terms of inter-modality and services:

• Impact assessment in terms of improving the efficiency of freight transport in the Atlantic Arc.

• Improvement in services and in the multimodal operation of the platforms.

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CATALONIA • SPAIN

The mobility plan 2013-2018 of the metropolitan region of Barcelona

The plan establishes measures to be taken in the coming years in the field of the mobility of people and goods. According to a 2012 statistics database, there were 16.9 million daily trips by residents (over 15 years old) in the Metropolitan Region of Barcelona. The plan identifies 10 priority objectives in 9 areas of action and 360 measures. The estimated budget for all these activities is 52 million €.

The plan defines 10 priority environmental objectives:

1. Encourage modal shift towards more sustainable modes.
2. Increase the efficiency of the transport system.
3. Reduce the distance of trips.
4. Reduce externalities of the transport system.
5. Reduce the consumption and energy intensity of transport.
6. Reduce the contribution of mobility to climate change.
7. Reduce the impact of atmospheric mobility
8. Reduce traffic accidents.
9. Ensure the accessibility of the mobility system.
10. Introduce new technologies in mobility management.

The technical evaluation of the plan included an analysis of GHG emission and a proposal of mitigation measures in the transport sector in accordance with the 2020 EU Climate and Energy Package. It is expected to reduce 1.5 Milions Tons of CO_2/year.

Main challenges of including climate change mitigation and adaptation considerations in future regional planning structures are related to the technical approach and capacities of practitioners involved in the planning process, essentially at regional and urban level. This approach often lacks sustainability and fails to consider the pressure on available resources and the mitigation measures that need to be applied. The business as usual approach has to be replaced by an integrated territorial planning where natural, rural, rural-urban and urban areas are interconnected and where the services they provide are safeguarded.

Introducing a GHG emissions analysis as a part of the Environmental Impact Assessment process allowed to better define the priority measures and the most significant actions to be undertaken, to reduce climate impact as well as to compare different alternatives/scenarios in order to achieve an enhanced sustainable decision-making.

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Education, mobilisaton and awareness rising towards climate action

AZUAY • ECUADOR

Social organisation along the San Francisco channel

Access to water is a vital element in the province of El Azuay. The area of Santa Isabel has suffered difficulties in accessing water over the last years not only for availability issues but also for bad distribution.

Historically, landowners used to gather water access to irrigate their lands and prevented small farmers from watering their lands. Later, the irrigation channel San Francisco was built with an average water flow of 1,000 litres/second and the capacity to water 2,400 hectares. Nevertheless, small farmers still could not make efficient use of water as the water shifts were not established appropriately. Therefore, farmers started to water their lands using an unsustainable irrigation method consisting in flooding the lands and eventually degrading soil quality. An attempt to stock water was made by building reservoirs, but due to technical planning these caused landslides that affected homes and proprieties, and left unstable soils useless for agrarian production.

In 2001 the government of El Azuay started working on the pressurization of irrigation systems. Although the solution was good from the technical point of view, it was not socially accepted. One of the lessons learnt by El Azuay is that a water management model that does not take into account social elements will necessarily fail.

While President Paul Carrasco was on term, the approach strategy focused on the search of mechanisms to achieve social support to water management. Because the work started before socializing the measures and creating the necessary capacities among civil society, it was decided to start the dissemination of the measures among civil society through local radio broadcasts. The radio disseminated messages in which the works developed were carefully explained, and convened assemblies' meetings in those locations where civil society was more reluctant. Those actions, together with the implementation of demonstration practices in a pilot farm, succeeded in achieving the support and approval of the works by civil society.

In order to make those procedures feasible and to strengthen the organisation, in 2013 a programme on capacity building titled "Administration, operation and maintenance of irrigation systems" was addressed to the channel's users, looking to achieve efficient, well-organized, economic and professional use of water. Capacity building was developed over a year through workshops that aimed to strengthen coordination in leadership. Increased awareness among users on the need to use water properly was achieved. In addition, we succeeded in the following: value the water resources, value the economic costs of water infrastructures and rational use of water. Raising awareness and capacity building also included training in users' rights and participants learnt and exercised their rights with regards to water access such as: petition, licences, preservation; all within the framework of sustainable human development.

We managed to strengthen leadership, social participation and social interest in decision-making related to the future of the territories and to the election of political representatives. We created local capacities to plan, convene, develop and lead, in appropriate manner, the community meetings and the registration and monitoring of achieved agreements.

Last, under the Act for Water of El Azuay, we succeeded in raising the awareness of participants and in disseminating information on the importance to preserve water heritage and to implement preservation measures as well as to use water in a coordinated and rational way.

In the nearby of the channel, 1,600 families benefit from the new swift irrigation system and are working together to preserve and ensure efficient use of resources, as well as to use water to produce food for own consumption and for local markets. That contributes as well to food autonomy in the territory.

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Education, mobilisaton and awareness rising towards climate action

BASQUE COUNTRY • SPAIN

School Agenda 21

Environmental education, especially since the 1980s, has had an ever greater influence on the schools of the Autonomous Community of the Basque Country. Although the first schemes were one-off and partial, this education has evolved into schemes of broader scope, in which schools have achieved socially responsible sustainable functioning.

Following the recommendations of UNESCO with regards to Environmental Education and the directives emanating from different meetings and institutions interested in the environment, the INGURUGELA network (Centres for Education and Research in environmental education) were created in 1989 by the Basque Government from an agreement between the Department of Environment and the Department of Education. The creation of INGURUGELAS was a breakthrough in the field of environmental education; they constitute instruments intended for the service of environmental training of the teaching staff at non-university educational levels and for encouraging a greater awareness and sensibilisation of citizens with regards to the environment.

Since 1992, when the Earth Summit took place in Rio de Janeiro, many municipalities of the Basque Country began to develop Local Agenda 21 schemes. This situation opened up an exceptional opportunity to implement in the schools and municipalities environmental schemes, so in 2003 School Agenda 21 programme was launched.

School Agenda 21 is an educative programme for the sustainability and the quality of the education centre. It is based on the participation of the community and collaborates with the sustainable development of the municipality.

As a programme of environmental education, its purpose is to develop knowledge, capacities, attitudes, motivation and commitments to do one´s best in the resolution of the environmental problems.

Its main characteristics are:

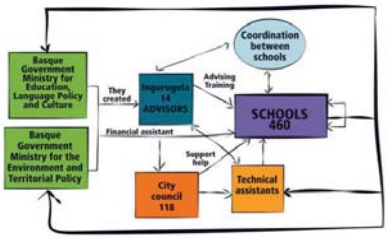
• To bridge two fields: the school and the municipality

• The participation of the educative community as the pillar of the project

• To foster the responsibility and sustainability at management

• To promote the curriculum innovation

Who is involved in the Scholar Agenda 21?



What is the Scholar Agenda 21 about?

Scholar Agenda21 is developed around an environmental problem which takes as reference the goals of the Basque Environmental Strategy. Every year, since 2003, the Scholar Agenda21 is developed in relation to an environmental problem such as biodiversity, climate change, water, residues, energy, habits of consumption, mobility etc.

It is developed in five phases:

1. Organisation and planning: the bases of the organisation and the initial planning are defined.
2. Awareness and motivation: it is fundamental to achieve the participation of the educative community.
3. Diagnosis: a snapshot of the preliminary situation of the centre and the municipality.
4. Action plan: The set of activities designed to make the education centre and its surroundings more sustainable are defined and planned. Specific objectives for improvement and actions to achieve them are put forward in order to develop the plan; indicators are also decided upon in order to measure the positive results.
5. Communication and assessment: They are developed through the whole project because of their special characteristic.

The Municipal School Forum is especially relevant because students present the results of the work carried out, the commitments taken on and proposals made to the local authorities (mayor, councillors).

Moreover, there is an evaluation process to give the credit to the High Quality School Agenda 21 experiences. This accreditation recognizes the applied procedures, the gained experiences and, in short, the school´s quality in the areas of education, participation and sustainability. Nowadays, we have more than 80 "Excellent Agenda 21 Schools". The students of these schools have taken part in several regional, state and international youth conferences.

Project results:

• More than 60% of the schools (460) are involved in this programme in the Basque Country, of which 81 are already considered "Excellent Agenda 21 Schools". So UNESCO has recognized School Agenda 21 as a good sustainability education practice within the framework of the United Decade of Education for Sustainable Development (2005-2014).

• It has achieved innovative projects towards school sustainability management, curriculum innovation and participation in the school and local community.

• Municipalities listen and respond to proposals made from schools and make commitments.

• Political commitment to implement the process. Technical and financial support to schools and local government to promote the agenda 21 process.

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Education, mobilisaton and awareness rising towards climate action

CATALONIA • SPAIN

Schools for sustainability network and the ESenRED network

For over 15 years, both the Catalan Government, through its Green Schools programme, and town councils, through the School Agenda 21 and environmental education programmes, have been promoting education for sustainability programmes directed at schools fostering the participation and involvement of the whole education community. All of these programmes have similar objectives, thus the Catalan Government and a number of town councils have agreed to cooperate, coordinating action and joining forces. The goal is to make sure that all of these initiatives aimed at the community education benefit from this collaboration between institutions.

In this context, in 2009 the Catalan Schools for Sustainability Network (XESC) was created, comprising the Green Schools' network and local networks promoting education for sustainability programmes for schools in their area. We could then define the XESC as a network of school networks that develops education for sustainability programmes.

The main aims of the XESC are to:

• Establish coordination and exchange mechanisms that facilitate collaboration between networks.

• Foster internal debate in order to advance the conceptualisation of Education for Sustainability in schools.

• Collaborate in teacher training and providing educational resources.

• Promote research and assessment of the Education for Sustainability process and its results.

• Promote the inception of local networks where there are none, and helping to consolidate existing ones.

• Establish links with other networks in other autonomous communities, Europe and elsewhere.

To develop this aim, the XESC has fostered the creation of a Spanish network of sustainable education centres, promoted by the public administrations, known as ESenRED (Schools for sustainability network). ESenRED is therefore a network of education centres networks that works with sustainability as a common goal to consolidate their projects, exchange experiences, promote synergies, undertake projects together, maintain relations with other national and international networks.

A sustainable education centre is understood to be one that promotes education for sustainability through the learning and participation of all members of the education community (teachers, pupils, non-teaching staff and families), with the aim of making it part of the school's educational project.

This translates into education centres that are working towards sustainable management, a democratic participation process and curriculum innovation, and that are actively involved in improving the environment.

The objectives of ESenRED are to:

• Facilitate meetings, exchange, collaboration and dissemination amongst the various networks.

• Promote reflexion on, assessment of and innovation in their own practices to build knowledge together.

• Develop common projects amongst networks seeking constant improvement of the learning process for their pupils through active participation.

• Establish contacts, initiate relations and undertake projects with other international schools for sustainability networks.

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Education, mobilisaton and awareness rising towards climate action

FATICK • SENEGAL

Green school project or how to integrate the environment into education

Law 96-07 of Senegal provided for the devolution to the Local Authorities of Environment and Natural Resource Management, together with education, literacy efforts, the promotion of national languages and vocational training. Thus, the Fatick region is now in charge of more than 90 intermediate schools, 20 secondary schools and 600 primary schools throughout the region. However, these establishments in most cases do not provide suitable living conditions for the students from an environmental standpoint.

Hence, the Fatick Regional Council, in collaboration with the Local Schools Inspectorate, is implementing the Green school project to improve schools environment and raise awareness towards sustainable development among local agents. The general goal is to improve the living conditions of school establishments and raise awareness among school managers towards sustainable development. **Specific goals include:**

- Raise awareness among students towards environmental problems.
- Clean up the school premises.
- Set up a "green lung" inside the schools.
- Liven up the school premises.

Expected results:

- Enhanced awareness towards environmental problems among students, teachers and parents.
- Environmental cells to be set up at each school.
- The school's environment to be cleaned up and the school yard replanted.
- A school forest (an orchard and a vegetable garden to be created).
- The school is to be equipped with dustbins and a rubbish dump.

Main activities to be developed:

- Set up an environmental cell in each school.
- Hold a workshop on environmental issues for management and staff.
- Publish a School Environmental manual.
- Organise study and discovery trips.
- Hold a "clean school day" every month.
- Install dustbins in the classrooms and schoolyard and a rubbish dump in each school.
- Hold a World Environment Day every year.
- Stake out a 2-hectare area for replanting (school forest).
- Create an orchard and a vegetable garden.
- Replant the school yard.
- Paint murals on the walls.
- Put up a sign on the school gate.

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LA RÉUNION • FRANCE

Actions for education to the environment and sustainable development

La Réunion is a volcanic island, located in the tropics. It has been an UNESCO World Heritage listed since 2011 and it is one of the 34 hot biodiversity spots of the world.

The Regional Council strongly supports the associations and organisations for the preservation of land and marine biodiversity: ARDA, ARVAM, Marine Reserve, Kélonia, Globice, Abyss, Conservatoire Botanique des Mascarins, Parc National des Hauts.

For a collective ownership of the objectives of preservation and enhancement of our environment, two courses of action have been developed:

1. Creation of venues for study and enhancement of the natural heritage

The Regional Council created museums, which offer educational programmes on the environment and sustainable development to the general public and specific sequences for children. Kélonia (www.kelonia.org) is a turtle observatory, and it offers awareness campaigns, education programmes and research. La Cité du Volcan (www.museesreunion.re/laciteduvolcan) is an international science and educational centre and exceptional tourism site, allowing the discovery of geological history with 4D movies and interactive models. A specific space is dedicated to young audiences.

2. Actions for education about the environment and sustainable development

- "Green Days: study of the environment and the natural heritage of La Réunion and action of carbon offsetting for high school students, who responded to Agenda 21 project's calls.
- "The Pandathlon", in collaboration with WWF France: sporting discovery of the nature of the island. Eco designed race, with a specific children course, including educational activities dedicated to the learning on the envi-

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ronment. Sports Agenda 21 labelled event.

• "Open road": an annual event organized by the Regional Council. A major highway is closed to traffic. Alternative, soft modes of transport are available to participants (bike, electric vehicles) and educational booths explain the consequences of motor transport and the changes needed for a sustainable development.

• "European mobility week": implemented by the Regional Council to provide advice and information; alternative means of transport and bikes are made available to staff. Carpooling is strongly encouraged.

• "Save the bees": action with primary schools consisting of replanting endemic species for the safeguarding of bees in the South of the island.

• "Awareness campaign" for the South West of the Indian Ocean to become a sanctuary for the protection of whales.

• "Sentinel Network": in the marine reserve, the public is invited to participate in the observation and the census of coral species and reef fauna (participatory approach of the population).

• "Marine Trail": for the discovery of the marine environment and awareness-raising of preservation and Ecocitizen behaviours.

• "Botanical paths": in the national park and biological reserves. Presentation and study of forest ecosystems and plant formations.

Three of these projects are presented in more detail below.

1. Green day

The Education for Environment and Sustainable Development (EESD) is a priority of the programme "La Réunion, Solar Island, Land of Innovation". In the context of the "Green Revolution" programme, the Region initiates awareness and citizen engagement projects on the environment and biodiversity.

In 2012, year of ecology and biodiversity in La Réunion, and in accordance with the international goals of Aichi (Nagoya Protocol), the Regional Council set up the Green Days for high school students. The principle: to discover natural resources and encourage young people to better understand the protection and enhancement of nature through multiple filters: geological, historical, and sociological. Through a "landscape reading" conducted by scientists trained in environmental issues, students perform a geographical reading of the natural sites and biodiversity of the island. Action of carbon offsetting is proposed to them through the planting of endemic trees on sites dedicated to become an arboretum.

The "Green Days" began on November 30, 2012 sponsored by WWF France. Five Green Days were organized both on the terrestrial and marine environment and had mobilized nearly 500 students from the four geographical basins of the island.

2. Study and protection of marine biodiversity and coral reefs

Education for sustainable development to increase citizens' awareness of ecological and economic major roles of coral reefs is a priority. The Natural Marine Reserve of La Réunion (RNMR) conducts awareness campaigns throughout the year.

Annually, 3000 children participate in animations on the beaches; they aim particularly at the young public (primary), who is very receptive to messages of preservation of natural environments.

Guided tours of the lagoon (Ermitage), along an underwater route, are also made by RNMR. Veritable showcase of the Marine Reserve, the trail underwater of the Ermitage is a great tool dedicated to the education for the protection of the environment: a thousand college students and high school students are made aware per year.

Since its inception in 2002, more than 16,000 people participated in these educational tours. Mrs Couapel-Sauret (Vice President of the Regional Council) received the IFRECOR award 2013, in the category 'Education and Awareness' for this very appreciated discovery of marine activity.

In addition, RNMR has recently implemented a network of observers – sentinels of the reefs – whose aim is to improve the knowledge on coral reefs but also educate and empower users, so that tomorrow, they become real actors of the protection of the oceans.

3. Awareness and pedagogy missions of the National Park of La Réunion

The territory of the National Park of La Réunion is an excellent teaching laboratory. In addition, it presents unique landscapes, which were included in the UNESCO World Heritage in August 2010: Pitons, Cirques and Ramparts.

The National Park is a leading player for

awareness and education in the protection of its territory and its natural, cultural and landscape heritage. It proposes a transversal, multidisciplinary and interpretative approach and adopted teaching methods promoting mediation. This all made the National Park an area of "happy knowledge", which plays a fundamental role in the network of actors who work in the field of education to the sustainable development and artistic and cultural topics.

The impacted public is broad, being the younger generations particularly targeted. The Academy of La Réunion counted more than 220,000 pupils in 2013. The implementation of the pedagogy of the encounter with "the outside", with natural landscapes and heritage promotes the interpretative process and deserves to be put forward for all audiences. An agreement was signed in May 2014 between the National Park and the local education authorities to strengthen environmental education projects.

The following actions were implemented:

• Cultural mediation promotes meetings between the public and the heritage-classed sites.

• The fifth issue of the National Park Charter is transversal and focuses on sharing its content and on the involvement of all stakeholders in its implementation.

• 20 mediators of the institution benefited from several formations to answer to the demands (tales, geology, ecosystems, etc.).

• Games designed and carried out by agents have been tested. Unfortunately, constrained financial means do not allow printing and further dissemination.

• There are 158 educational animations across 23 sites in the 4 geographical areas of the national park.

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MINAS GERAIS • BRAZIL

Environmental education in public buildings

"Ambientação" is a programme of communication and socio-environmental education coordinated by the State Environmental Foundation (FEAM), in partnership with the Israel Pinheiro Foundation. The objective of this programme is to promote the sensitivity for behaviour change and the internalization of ecologically correct attitudes in the daily life of the state government employees, by adopting environmental practices to provide more sustainable processes, without unconscious consumption and with better use of public resources.

Currently, 68 institutions and 46 buildings are enrolled in the programme, involving more than 30 thousand state government employees into its action targets "Conscious consumption" and "Management of waste".

The first one, "Conscious consumption", has the objective to direct the state government employees for the responsibility for the correct use of the goods and services of the public administration, providing economy of natural resources, reduction of wastes and reuse of materials.

The second one, "Management of waste" makes possible the appropriate destination of the waste of the organisations, providing recycling, increase of the lifespan of the sanitary landfills and income for the waste pickers that receive the recyclable materials through donations.

The programme is monitored through an Integrated System of Environmental Management. With this tool, the government employees of the organisations can monitor the tendency of consumption, establish goals and compare results based on its historical results or others organisations benchmarks.

The results accomplished in 2013 were:

• 329 tons of waste (representing 49% of the total in the organisations) was sent for recycling.

• Reduction of 77% in the consumption of disposable plastic cups or 1,500,000 units in the state government buildings complex, representing an economy of approximately US$ 20,000.

• 7,895 note pads were made with reused paper, representing 357,440 one-side used papers.

• In 2013 two state parks joined the programme.

The main challenges faced were:

• Rotation of the workforce of conservation and cleaning in the institutions, demanding constant training.

• Resistance of the government employees who do not agree with the substitution of individual garbage cans for shared selective collectors and with the substitution of disposable plastic cups for lasting mugs, demanding persistent and creative development work.

• Shortage of financial resources in the organisations for acquisition of basic infrastructure necessary for the development of the programme. Many actions are possible through intra and inter-institutional partnership.

To deal with those challenges the programme has a dynamic and objective form of developing communication and environmental education for the raise of awareness of its public. Some examples are: folders, videos, games, theatre interventions, conscious consumption fair, seminars, journals, and social media. There is also technical material providing models of concepts, procedures and orientation for sustainable action.

During its ten years of existence, the programme received a number environmental rewards: Public Management Excelence (2005), Ponto Terra Minas Environmental Prize (2006), Ford Motor Company Prize for Environmental Protection (2006), and the Hugo Werneck Prize for Sustainability and Love for Nature (2011). Also the programme became a reference for other Brazilian states and private organisations.

Lessons learnt and recommendations:

• An environmental education programme must constantly reinforce concepts and look for continuous improvement, making conviction and leadership the predominant factors for the commitment and participation of its target public.

• The success of the educative proposal of the Ambientação depends fundamentally on the motivation and participation of the government employees and the support of the higher direction of the institutions.

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Education, mobilisaton and awareness rising towards climate action

NORD BURKINA FASO • BURKINA FASO

Strengthening of capabilities for balanced and sustained growth in time and space

Since the 1980's Burkina Faso made education for sustainable development a priority. The school programme promotes the fight against bushfires, fight against abusive deforestation, and fight against the free grazing of livestock. An effort has likewise been made to develop what is generally known as inclusive education for the preservation of the environment and sustainable development.

Since 1995, Burkina Faso focuses on the implementation of institutional mechanisms for the community management of resources, as well as to develop the necessary local capabilities to carry out such management. It is also engaged in an ongoing effort to balance conservation imperatives with local development imperatives. The guiding principles of this undertaking are to hand back the management of resources to local communities and put in place income generating resource management activities.

In term of strengthening of local capabilities, promoting institutional support to the community and promoting local governance, Burkina Faso developed a process known as communalisation integrale (merging together of all the former rural communities). This process brought greater autonomy to local authorities in the development and management of sustainable development policies and regional strategies. In the north region, in view of the extremely degraded condition of soils, and in order to allow the development of institutional management mechanisms for natural resources, it is essential to invest in the strengthening of local capabilities, at the level of producers and local resource management institutions. Two aspects are central: the management of natural resources by local communities, and the sustainable use of such resources.

This need has been addressed by offering not only technical training to enhance local production performance levels, but also training in financial and organisational management. The Regional Council has forged partnerships with local structures specialising in sustainable development, including the Regional Agricultural Chamber, the NAAM Groups, and the 6S (Savoir se Servir de la Saison Sèche au Sahel et dans la Savane – Knowing how to take advantage of the dry season in the Sahel and in the Savannah).

These structures support the people by teaching them cultural and economic exploitation techniques appropriate for the Region: including the dissemination of techniques such as cordon pierreux (thin lines of stones across fields to form a catchment), the half-moon or the zaï (plant pits).

The management of natural spaces and their resources under the modern legal system is frequently a headache for villagers. The existence of complex and often ill-understood regulatory structures means that local communities, without suitable support are incapable of meeting the state requirements for the transfer of management rights to the local level. This has prompted our region to enter into an agreement with UICN-Burkina to educate the local populations on the matter. This agreement has led to the consensus-based design of required actions to adapt to climate change: switching from thermal energy to solar energy, and the adoption of biodigesters, especially by rural populations, to avoid wood cutting and the use of destructive chemical fertilisers.

The solar energy and biodigester experience in the north region, coupled with cultural techniques, have yielded significant results. With regard to the preservation of biodiversity, a reduction in deforestation for heating and cooking and progressive reforestation has been observed. In agriculture, the use of compost from biodigesters and the application of the cultural techniques mentioned earlier have led to a doubling on the production. The adoption of solar energy also reduced the production of greenhouse gases and provided lighting even in rural areas without substantial costs. Solar energy lighting in schools has driven academic success rates from around 60% last year to 82% this year.

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Education, mobilisaton and awareness rising towards climate action

QUEBEC • CANADA

Education for sustainable development

The purpose of the Sustainable Development Act (SDA), passed in 2006, is to establish a new management framework within the public administration to ensure that its powers and responsibilities are exercised in the pursuit of sustainable development. The Act stipulates that sustainable development must be based on a long-term approach that takes into account the inextricable nature of the environmental, social and economic dimensions of development activities.

The Government's Sustainable Development Strategy 2008-2013, which serves as a reference framework for the implementation of the Act, has two priorities with respect to the dissemination of information, knowledge sharing, awareness raising, training and the development of skills that contribute to sustainable development. The first priority provides for the implementation of a government plan intended to educate and train public administration personnel to facilitate the integration of a culture of sustainable development into decision-making processes, policy and programme development, and day-to-day operations. The second priority implies that the government departments involved help their respective networks adopt a sustainable development approach consistent with the SDA.

Thus, the Ministère de l'Éducation, du Loisir et du Sport (MELS), in conjunction with its partners, has developed a plan to guide the school system. To date, its achievements include the creation of a section on sustainable development on the MELS Web site; an offer of support and presentations on the concept of sustainable development and the government's approach to it; and a guide to help school boards and private schools adopt sustainable development policies. This guide contains a diagnostic tool covering six topics related to certain sustainable development principles and issues in Quebec, and to the Quebec Education Programme (QEP): health and well-being, education and training, environmental protection, citizenship, prosperity and economic efficiency.

The education reform that began at the turn of the 21st century revamped learning content and pedagogical approaches in order to foster the development of the following competencies for elementary and secondary school students: cross-curricular competencies common to the subject-specific programmes, and competencies that apply to the broad areas of learning.

The broad areas of learning set out in the Quebec Education Programme present the main spheres of meaningful citizenship activity related to fundamental sustainable development issues for both individuals and communities. The broad areas of learning also address issues that young people will have to face at various moments of their lives, and constitute the educational aim in all learning and evaluation situations.

These spheres are as follows:

• Health and Well-Being: To ensure that students develop a sense of responsibility for adopting good habits with respect to health, safety and sexuality.

• Personal and Career Planning: To enable students to make and carry out plans designed to develop their potential and help them integrate into adult society.

• Environmental Awareness and Consumer Rights and Responsibilities: To encourage students to develop an active relationship with their environment while maintaining a critical attitude toward consumption and the exploitation of the environment.

• Media Literacy: To enable students to exercise critical, ethical and aesthetic judgment with respect to the media and produce media documents that respect individual and collective rights.

• Citizenship and Community Life: To enable students to take part in the democratic life of the class or the school and develop an attitude of openness to the world and respect for diversity.

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RIO DE JANEIRO • BRAZIL

Education in the environmental administration process

The Secretariat for the Environment of Rio de Janeiro State (SEA), through its Superintendence of Environmental Education (SEAM), is responsible for the elaboration and implementation of the public policies of environmental education in the State of Rio de Janeiro. The present scenario demonstrates that the aforementioned actions and policies have been producing, from a systemic perspective, a virtuous circle in public administration, by decentralizing and sharing responsibility, as well as disseminating democratic values and political-pedagogic propositions that induce and stimulate an educational work aiming for sustainability, participation and social control. From the analysis of existing problems and conflicts, potentialities, priorities and possible working partners, a priority plan was elaborated and its appointments turned into actions and projects with attainable short-, medium- and long-term results.

SEAM's programmes and most of its projects are put into practice through a partnership with the State University of Rio de Janeiro (UERJ) and are financed by the State Fund for Environmental Conservation and Urban Development (FECAM). However, there are also projects funded by resources obtained from the Environmental Compensation foreseen by the article 36 of the law 9980 of 2000 that institutes the National System of Conservation Units.

The current programmes and projects address the formal education axis (Elos de Cidadania), the non-formal education axis

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(Ambiente em Ação, Mãos à Obra, Damaré, Projeto Mosaicos da Mata Atlantica and Museu do Amanhã) and Educommunication (Comunica SEAM and Nas Ondas do Ambiente), focusing primarily on social groups historically excluded from public policies: the school community; traditional populations; agricultural families and small rural producers; social groups affected by enterprises of high environmental impact, exposed to environmental and technological risks and damages; city hall technicians; environmental administrators; municipal environmental councils; watershed committees; and the administrative councils of Conservation Units.

The agency's activities also aim to reach environmental sustainability by engaging various other areas of knowledge, such as the sociocultural constitution of notions of gender and sexuality, as well as religiosity. Its projects aim to: strengthen communities; achieve greater public participation in the environmental administration; generate more employment, income and social inclusion, likewise valorising and stimulating local initiatives; promote actions of identity empowerment; strengthen the participative administration in the context of Critical Environmental Education; act on the collective elaboration of the Natural Disasters and Accidents Prevention and Confrontation Plan; educate social-environmental monitors; and induce the integrated and participative administration of Protected Natural Areas Mosaics.

Its environmental communication policy is based on the principles of democratisation, promotion and inclusion of social-environmental questions and on the rights to communication and information through TV, radio, newspapers, magazines and internet.

The State also created the Interdisciplinary Group of Environmental Education (GIEA), a collegiate coordinated by both the Environment and Education agencies that aims to establish a conversation among the various sectors of society and to effectively implement the State Environmental Education Policy.

The obtained results show that the actions implemented by SEAM have had positive influence on the places directly addressed by the entity. The expansion of the projects in the coming years is desirable, so it is to achieve more expressive results and to be expanded to other regions of the State.

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SÃO PAULO • BRAZIL

The experience of eco-playrooms

Eco-playrooms are spaces for integrating and bringing closer children, youth and adults to the nature, based on cognitive, affective and aesthetic approaches that foster collaborative behaviours through play. The initiative reinforces local sociocultural traditions, by rescuing and strengthening regional games and toys.

The space holds workshops and educational activities for assembling toys, musical instruments and games, produced exclusively from discarded material suitable for playful and recreational activities to reflect upon solid waste, especially disseminating the 5R Concept – Rethink , Refuse, Reduce, Reuse and Recycle – with maximum assimilation of these concepts by the habitual public.

The project was experimentally set in 2014, through a partnership between the Coordination of Environmental Education and the Botanic Institute, both from the São Paulo State Secretariat for the Environment. The eco-playroom was implemented on a 30m² area in a public area of the São Paulo's Botanical Garden; an urban park built at the State Park Fontes do Ipiranga – State Conservation Unit of the Metropolitan Region of São Paulo.

Five months were required for preparing the space and training human resources, developing art and design for the site, as well as for the acquisition and processing of raw materials for the confection of toys.

Toys and games were produced by four experts from the Coordination of Environmental Education, and three monitors were trained and hired. All the furniture was made of discarded cardboard, sanitized and pressed into offset plates shape, and finally stylized by an artisan expert in materials reuse techniques.

For the first two months, the site was open to the public six days a week, four hours a day. Groups of students, in organized and pre-scheduled tours by the schools, as well as by the habitual public of the park, had free access to the venue.

Staying in the room was unlimited, with permanent staff assistance, and the usual length of individual interaction and visitation was from thirty minutes to two hours. The approximate total number of visitors was 700 people of all ages; children up to 14 years being accounted for the largest interested segment (57%), which is explained by considering the evaluation period was during the first semester of school time, when schools visit the São Paulo Botanical Garden. Besides this specific audience, the second highest frequency was from visitors aged over 65 (23%). The acceptance and interaction with toys and games was excellent and intense, with great encouragement for all visitors to play, regardless of their age.

The biggest challenges were related to capacity building and training of human resources for the implementation and execution of activities with visitors, and yet the adaptation of disposed materials necessary for the manufacturing of toys and games, as well as the dissemination of the action that aimed to clarify and break down prejudices, reinforcing the idea that playing is a right of people of all ages.

Unfolding this project aims at increasing, through continuous capacity-building, of specialized human resources for the implementation of new Eco-Playrooms, turned into public facilities that will act as multipliers of the concepts of biodiversity conservation, combined with preservation of local cultural identity, for recovering and intensifying the interaction between people by playing in all municipalities of the São Paulo State.

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SOUTH KOMOÉ • IVORY COAST

The creation of ecologic schools towards environmentally aware citizens

Agricultural production remains the basis of the Ivorian economy, with the overexploitation of forests for timber and fuelwood by 16 million hectares at the beginning of last century – the rainforest decreased from 9 million hectares in 1965 to 3 million hectares in 1991. Today it is estimated at approximately 2.5 million hectares. For the South Komoé region, reforestation remains a concern, emphasizing community agroforestry by planting trees in schools. The South Komoé Regional Council, through the creation of ecologic schools, achieved the following goals:

• Helped educate future generations in the fight against environmental degradation (training eco-citizens).

• Familiarized students to collective work via environmental education, especially focusing on forest degradation and greenhouse gas emissions.

• Trained students to respect the environment so that they become concerned citizens in their local neighbourhoods.

The collective work has become habitual among student behaviour and environmental education in forest degradation and greenhouse gas emissions has been effective. Students of the South Komoé region and their parents benefited from the programme.

This project requires awareness campaign materials for students, parents and teachers in all localities of the South Komoé region, through different means of communication (posters, TV spots and radio, T-shirts, caps, advertisement in newspapers, etc.), what sometimes posed a challenge to its implementation.

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WALES • UNITED KINGDOM

Developing and embedding education for sustainable development and global citizenship across education sectors

From the outset, the Welsh Government has been committed to promoting sustainable development across all aspects of its work and has recognised the role of education in supporting this agenda. Global citizenship stemmed from a commitment to encourage schools to emphasise active citizenship and provide young people with opportunities to engage with the wider world.

In 2004, it was decided that, as there was considerable overlap between Education for Sustainable development and Education for Global Citizenship, these concepts should be merged. The merger was seen as an opportunity to develop a more coherent approach and increase efficiency and effectiveness. Wales was one of the first countries in the world to have a government policy on Education for Sustainable Development and Global Citizenship (ESDGC). It raises the awareness of learners, at all stages of education, about their responsibilities to their communities and to the rest of the world. ESDGC also helps them to understand the impact of their choices on other people, the economy and the local and global environment.

The first challenge was to develop and promote ESDGC across all education sectors. An Advisory Panel, comprising Welsh Government officials, representatives from education and third sector organisations and reporting to the Education Minister, worked across education to develop and promote this concept.

More recently, it was recognised that for ESDGC to be effectively embedded across education, guidance tailored to the needs of each sector would be required. Guidance documents were therefore developed, in collaboration with stakeholder organisations. Once the guidance was in place, the focus was on ensuring that ESDGC was effectively delivered by practitioners.

There were concerns that mainstreaming might lead to a loss of focus on ESDGC within educational institutions. To prevent this, ESDGC became part of the inspection framework introduced by Estyn, the education inspectorate, in September 2010. As a result, Estyn assesses the quality and provision of ESDGC in all the education sectors that it inspects. This has also enabled good practice to be shared and weak provision to be addressed.

In light of continuing concerns about effective mainstreaming, in 2013, the previous Minister for Education and Skills asked Estyn to review how effectively ESDGC had been mainstreamed in primary and secondary schools and to make recommendations for improvement.

Estyn's Report was published in June 2014 and its findings were largely positive. It found that in most schools:

• pupils had a good understanding of ESDGC.

• school leaders had a clear vision for promoting this concept.

• aspects of ESDGC were taught effectively through a variety of subjects.

However, Estyn made recommendations for improvements in some areas, including: increasing pupils' understanding of the more complex aspects of ESDGC; providing opportunities for pupils to use their literacy and numeracy skills in ESDGC work; assessing pupils' progress; and improving training for teachers and governors. While no recommendations are directed to the Welsh Government, we propose to support the implementation of the recommendations by raising awareness of the Report.

Education, mobilisaton and awareness rising towards climate action

A range of initiatives demonstrates Welsh commitment to ESDGC. This is clearly seen in our International Education Programme (IEP), which is delivered by partner organisations, primarily the British Council, CILT Cymru and the Holocaust Educational Trust. The Lesotho Teacher Training Programme, for example, facilitates teacher placements in Lesotho. The project enables teachers to improve literacy and numeracy and develop ESDGC Professional Learning Communities around these priorities. It delivers learning across Wales in the field of sustainable development. The teachers benefit from exchanges of information and innovative pedagogical approaches. The activity improves the skills and awareness of practitioners on issues facing communities in a developing country, linked to improved standards in educational delivery. Other programmes support the teaching and learning of languages and culture and the instilling of an international dimension to the curriculum. They include the Language Assistants Programme and the Chinese Language Assistants (CLA) grant.

ESDGC has also been embraced by the higher education sector, through a range of initiatives. The Swansea University's Healthy University Group (HUG), for example, was created in 2011, to ensure communication and collaboration across the University on health, well-being and sustainability. This has brought together all the activities that contribute to these areas. It also focuses on health and well-being issues that many students face.

The internationalisation of higher education in Wales is being enhanced through investment in the new International Education Centre at Bangor. A new International Education Strategy has been developed. This will ensure that Bangor provides a relevant modern curriculum that is locally situated but globally applicable and adds significant value to the career outcomes of all who are educated there. This will include internationalizing the curricula and ensuring that the teaching and learning approaches intellectually develop home and international students, encouraging and supporting greater outward mobility and an international experience for UK students.

In addition, the Built Environment Sustainability Training (BEST) Cardiff University School of Architecture, supported by the European Social Fund, through the Welsh Government, was established to deliver training until July 2015. Cardiff University's Welsh School of Architecture is the lead sponsor, working in collaboration with the Building Futures Group, Constructing Excellence Wales, CITB-Construction Skills, the Energy Saving Trust, Proskills, and Summit Skills. Uniting these key stakeholders with responsibilities for the skills of the energy, waste, water and built environment sectors, the BEST Programme is creating a 10-year strategy and training delivery roadmap, to equip businesses, employees and training providers in Wales, by providing innovative training courses.

Finally, the ESDGC has an important role in the workplace and in vocational training. For that reason, in work-based learning, a three-year programme was delivered to ensure that the sector had specific guidance and resources on embedding ESDGC into work-related settings. This included the publication of a practical 'toolkit' for providers, all of whom then completed a self-assessment, to identify their strengths and weaknesses; a series of inspirational events for providers; the development of curriculum resources, 'owned' by the sector, which could be used to explore ESDGC themes in the vocational areas of Care, Business Administration, Customer Services, Hospitality and Transport.

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WESTERN PROVINCE • SRI LANKA

Educational exhibition on environmental conservation for school children

This project was undertaken to enhance the knowledge related to environmental conservation and its value for school children.

Goals of the project:

- To improve the knowledge related to environmental conservation and Eco-biodiversity.
- To improve the knowledge on sustainable development among school children.
- To promote urban agriculture among students.

Specific goals:

- To assist school children to gain knowledge through interaction with practical scenarios.
- To improve the skills and creativity of school children and the teachers.
- To develop infrastructure facilities at school level and to share the knowledge on Sustainable development.
- To develop a culture among school children about the environmental conservation.

The school children were guided on sustainable agriculture and use an urban agriculture methods. Under this topic children were taught how to make organic compost and were trained in growing their own food and

eating locally grown food with a view to reduce food miles.

The causes and sources of environmental pollution and how to take measures on to mitigate them were also discussed. Students learned about renewable and non-renewable energy sources, their uses and importance. In addition, it showcased the importance of wildlife in Sri Lanka and how to conserve it.

Schools were given media facilities and documents to disseminate the knowledge within the school and among other schools.

The exhibits were conducted in three Districts namely, Colombo, Kalutara and Gampaha of the Western Province. 88 schools participated in this exhibition. The exhibitions were held with the participation of both Sinhala and Tamil medium schools. Nearly 45,000 of students both within and outside the Western Province participated and closely observed the exhibits with their parents.

Main challenges:

- Time constraints.
- Limited stake-holder participation and collaboration.
- Resource constraints.
- Communication of gap between public and educational exhibition.
- Difficulties in promoting environmental conservation exposure in the other Sri Lanka provinces.

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PROVINCE ALPES CÔTE D'AZUR • FRANCE

The regional climate-energy air-scheme

PACA's regional climate-energy air-scheme (SRCAE) scheme was adopted in the summer of 2013, presenting a real roadmap for energy transition in the region. The local level participated in strategy formation by electing officials responsible for issuing planning documents (PLU, PDU, SCOT) and action plans (CFEP, Agenda 21) for the SRCAE main objectives. Likewise, local records of SRCAE were implemented by relevant criteria of department; PNR; country; and SCOT intermunicipality, providing concrete tools for regional territorial objectives. In a first phase, territories were analysed by State and Region services in order to adjust to their needs. The second phase was a series of 18 meetings in 2014, wherein the Region decided on "energy transition for the economic development of its territory" by ADEME and DREAL standards.

Phase II meetings addressed mayors and their deputies, as well as chiefs of staff of relevant intercommunal services. Discussion topics centred around three main objectives: energy transition; supporting role of state services (ADEME) and best local initiatives for territorial strategy; best practices that could be shared at regional level. A Prefecture (Sub-Prefect, Secretary General, Director) representation was elected at the Regional Council, with more than 530 people participating across these 18 meetings.

All phases allowed discussions with the audience on territorial projects, wherein options to strengthen the commitments in relation to energy, air and climate issues were debated for green growth. In addition, over 120 files were handed in by participants, stating their expectations for the energy transition. They expressed their satisfaction with the joint initiative of State/Region and the decentralized organisation of the meetings, mentioning a few difficulties around "taking action" decision-making.

Know-how, access to existing support groups and implementation of some specific projects, such as the establishment of wind turbines, connecting photovoltaic farms, green waste management, among others, were a few of the achieved results.

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WALES • UNITED KINGDOM

Welsh Government Warm Homes

The Welsh Government has invested £108 million annually to achieve the Welsh Housing Quality Standards for social housing. Although the housing stock in Wales is quite old, 74% of the existing social housing has been brought up to an energy rating of D or above and the Welsh Government is working to 100% of all homes by 2020. In addition, the Welsh Government has invested in improving the energy efficiency performance of the homes of those on low incomes, particularly in the private sector.

Welsh Government Warm Homes is the Welsh Government's strategic initiative to tackle fuel poverty and by improving the energy efficiency of homes across Wales. The programme is targeted at those on low incomes in living in deprived communities across Wales. Wales has a significant problems with fuel poverty with the most recent statistics reporting that 30% of households are living in in fuel poverty and about 30% are solid wall or hard to treat. Since 2012 Welsh Government Warm Homes has provided energy efficiency improvements to over 27,000 homes across Wales.

The initiative is manifestly cross-cutting – designed to maximise the environmental, social and economic benefits through the creation of local jobs, opportunities for local companies (particularly SMEs). It delivers commitments to reduce climate change, help eradicate fuel poverty, and boost economic development and regeneration.

Welsh Government Warm Homes is delivered through two approaches:

• Welsh Government Warm Homes Nest, which is demand led and responds to requests for support from individual households.

• Welsh Government Warm Homes Arbed, which targets deprived communities, and delivers energy efficiency improvements on an area basis.

Welsh Government Warm Homes Nest provides advice on saving energy, money management, fuel tariffs, benefit entitlement checks and information on other support available. In addition to advice and support, it offers a package of free home energy improvement measures to households who are in receipt of a means tested benefit and who live in a very energy inefficient home. Home energy improvement packages are designed for individual properties so there is no standard package of measures. A recent independent evaluation of Nest showed that just over half of those who received advice from Nest reported being better able to heat their home whilst this was considerably higher (at 89%) for those who received an installation. The most meaningful and widely stated impacts of the scheme have been increased confidence in, and reduced concern about, heating homes with some households reporting health improvements.

Welsh Government Warm Homes Arbed takes a holistic approach to delivery including effective household and community engagement, local regeneration and supply chain development, resulting in a high level of multiple benefits. It has demonstrated how using innovative procurement that supports the collaborative working of local SMEs can provide efficient homes but also improve household income through local employment. The results of this approach, of creating a partnership across all aspects of the delivery process and having all parties focused on a common objective, have been measured using the Value wales Community Benefit Tool.

The EU funded element of Arbed was the first programme to achieve a £2 return into the Welsh economy for every £1 invested into the programme, £2 being the maximum achievable.

The impact of Welsh Government Warm Homes Arbed is shown as an example in the statistics on the first Arbed scheme in the village of Fochriw, Caerphilly. The installation of the measures was awarded to a collaboration of 5 local SMEs. A significant factor in the successful delivery was due to all parties being able to bring their own particular strengths to the Delivery Team. The outcome from the scheme was:

• Value of contract for staff and labour: £2,233,167.00

• Income to people living in Wales: £2,233,167.00

• Percentage of contractors paid within 24 hours: 100%

• New employment for people living in Wales: 29 people

• Disadvantaged workers employed: 3 people

• Apprenticeships: 4

• Percentage of waste diverted from landfill: 80%

• Percentage of eligible materials recycled: 95%

Welsh Government Warm Homes has undertaken home energy efficiency improvements to 27,000 homes since 2012. Over 67,000 households have been given advice through Welsh Government Warm Homes Nest since 2011.

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BASQUE COUNTRY • SPAIN

The Green Employment Programme

The Basque Government's Department for Employment and Social Policies and Department for the Environment and Territorial Policy leads active employment policies and environmental policies. Lanbide, the Basque Employment Service, in cooperation with Ihobe, the Environmental Management Public Company, designed and launched the Green Employment Programme with the dual objective of promoting learning skills in areas related to green employment for young unemployed people with high professional qualifications and consequently contributing to the growth of the business environment of the Basque Country based on sustainable knowledge and development.

The Green Employment Programme, with a budget of EUR 4,983,000, was configured as a networking project where intermediate agents such as regional agencies, business associations and training centres formed a network for the deployment of the programme in the Basque Country.

The incorporation of the beneficiary organisations to the Green Employment Programme allowed the creation of a network thus achieving broad coverage of the programme on its target population: companies and unemployed young people.

The developed action involved:

• Training for green employment: To retrain unemployed young people with university degrees or advanced qualifications for new green jobs.

• Work placement experience: Making eco-innovative projects demanded by organisations participating in internship programmes to apply the knowledge acquired.

• Labour market insertion: Response to the emerging challenges of the market that demands professionals trained in sustainable development and eco-innovation.

• Entrepreneurship new business projects: Fostering a culture of entrepreneurship: creation of new business projects.

The design of the Green Employment Programme was carried out as an act of engagement between the needs of an emerging green market in which co-exist an important niche of organisations that want to invest in sustainable economic development and a group of unemployed young people with high qualifications, hit especially hard by the economic crisis of recent years.

In this trend, the main challenges of this Green Employment Programme were:

• Interdepartmental collaboration – one of the key aspects of the success of the Green Employment Programme was the collaboration framework created between two public agents experts in training and labour market insertion (Lanbide through Ihobe).

• Detection of employment niches – an adverse economic environment is also an opportunity to target stimulus and recovery plans towards innovation in green markets, increase competitiveness, diversify the productive industry, and develop new activities. Basque companies have to leverage what they do well in the fields of metals, mechanics, machinery and other business sectors, and advance towards the creation of new products and services that bring differential value elements, taking advantage of technology, design and marketing to capture new niches of high market potential and that are related to the road to sustainability that needs to be taken by global economy.

• Detection of groups to train – the transition processes towards low-carbon and more efficient economies requires new job skills, which at the same time requires the

strengthening of professional capacities and skills. The orientation of the Green Employment Programme towards mid-level or higher university studies and people with advanced vocational training is aligned with the Europe 2020 strategy (Horizon 2020). The effort made to identify the needs and shortages in labour matters of the Basque industry has helped define the training profiles of the group to be targeted by the Green Employment Programme.

• Networking of the beneficiary entities – 26 beneficiary entities have taken part in the Green Employment Programme. They helped to detect the needs and to promote the environmental actions among business organisations in their respective regions.

A few of the achieved results were:

• Immediate labour market insertion of 37% of unemployed young people who participated in the programme. The most in-demand fields were: Management of Industrial Energy Efficiency (56%), Efficiency in the Plastics Industry (47%), Environmental Certificates for the Market (41%), Design of Renewables for Buildings (41%) and Ecodesign (40%).

• 17 people have become entrepreneurs.

• 553 highly skilled unemployed young people trained 270 hours in average in green market emerging fields.

• 524 young people carried out an eco-innovation project in a company or organisation for 5 months thus improving their employability.

• 40% women and 60% men, both in participation and labour market insertion.

• 37 qualifying training and in-company projects led by 26 intermediate agents.

• 100% of companies believe that the young men and women arrived in their companies with a high level of training to implement the project.

• 70% of companies think that the young person has contributed to an improvement in the competitiveness of the business thanks to his/her project.

• 513 organisations have carried out green projects with young people, 76% of these were industries and private companies.

• 50% of the companies have substantially improved their environmental performance by participating in the Green Employment Programme.

The experience gained in this first Green Employment Programme from Lanbide opens a number of opportunities for the next period, the most important being:

• The definition of the priorities for action in the Basque Country of the new European Social Fund programme 2014-2020 with a priority focus on youth employment.

• The forthcoming publication by the European Commission of "Promoting Green Employment", which explores and communicates the final SWD (2012) 92 recommendation.

• A bigger precision at the Basque Country level of market needs in terms of energy efficiency and material efficiency in the industry as well as in sustainable rehabilitation.

• An analysis of the suitability of a new Green Employment Programme that focuses on the areas of greatest potential and integrates what was learnt from this experience.

• The rapid small-scale control of new innovative models to promote green employment that increase public spending performance even more.

• The establishment of new green curriculum developments at the Basque Country level that includes high qualifications and improves the employability of active professionals.

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CATALONIA • SPAIN

Strategy for Promoting Green and Circular Economy

The Government of Catalonia believes it can promote a green and circular economy as one of its defining features. In Catalonia's view, the harmonisation of economic development with improvements in human wellbeing and social equity will ensure the fundamental right to a healthy environment, in the context of the planet's limited resources.

Incorporating the sustainability component into the economy the government want to construct a region that is more resilient to economic and environmental crises, less dependent on foreign resources, with more intergenerational justice, and greater justice in general.

Promoting Green and Circular Economy is a strategy under the responsibility of the Catalan Ministry of Territory and Sustainability. It aims to foster sustainability as a strategic area to attain economic recovery, increase competitiveness, create jobs, and reduce environmental risks. The strategy has the following objectives:

• Align the Government's strategy on competitiveness with the priorities of smart, sustainable and inclusive growth that have been proposed by the European Union and international leading countries.

• Ensure that different ministries promote the efforts made by the Government in the area of green and circular economy, to ensure that they are coherent and visible.

• Establish priorities among the Government's future actions.

• Increase business leadership and the capacity to encourage companies and society in general to move towards a green and circular economy.

Based on the structure of Catalonia's strategic economic instruments, as well as an international benchmarking study, the following key policies for promoting green and circular economy were proposed:

• Generation of demand and creation of markets.

• Fostering of internationalisation.

• Promotion of research, development and innovation.

• Improvement in access to funding.

• Promotion of employment and entrepreneurship.

This strategy identifies, for each of the 5 blocks of policies, the instruments that are considered most effective for green and circular economy:

• First, plans, programmes and actions that are already being implemented by the Government and are directly or indirectly associated with green and circular economy.

• Second, existing instruments that have a high potential to contribute to promoting green and circular economy, but do not currently take it into consideration.

• Third, some proposals are made for innovative instruments in this field that have still not been promoted in Catalonia.

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AZUAY • ECUADOR

Generation of field-city agri-production solidarity networks – The Azuay Prefecture agro-producer Fair

The fair was conceived as a space where not only products could be exchanged, but also knowledge and experiences of those who considered it a meeting point. It aims to fight the global dynamics that generate the marginalisation and exclusion of small producers, especially agro-producers of food for local consumption. The recovery of the concept of the fair by the implementation of fair marketing spaces has been a priority of the provincial government, not only as a commercial exchange space but also, and above all, as a means to generate a fair and supportive economic culture among agro-producers and consumers.

The recovery of the fair as an economic, social and cultural space is led by Agroazuay, a company created by the Provincial Government of Azuay to promote the sustainable agri-development of the territory. For this purpose, it is supported by 36 organisations of agro-producers from the province of Azuay and it also counts on alliances with fishermen from the coastal area as well as with producers from the Amazonian region in the south of Ecuador, in order to diversify and complement the offer of food for the population and for the actual producers. The priority has been to generate an agricultural fair management model in Azuay, which is based on 5 priority lines:

1. Producer-consumer relationship: rise consumers' awareness with respect to the process involved in producing in the fields in the face of adverse and/or unpredictable economic and environmental conditions. Highlight the importance of the agro-producer in the development of the territory through the generation of a basic product for life: food. Publically acknowledge producers with best agri-production practices as a means of making their effort and contribution visible, and promoting good practices among them. Bring agro-producers closer to the reality of the urban population, helping them understand the social-economic dynamics of the cities. Knowledge and the meeting of these two groups promotes another vision of economy and development that benefits the province.

2. Production and local consumption: foster agricultural production under the viewpoint of food sovereignty, giving priority to the domestic and local consumption. This vision helps improving nutrition in rural areas and it also guarantees that the production is going to have the best health and quality conditions. Promote the recovery of our ancestral products, of our culinary knowledge and flavours as a means to revitalise the local economy, reducing external dependence and the ecological footprint. The great diversity of agricultural production of the province deserves that consumers purchase the local production, as a way of strengthening the territorial economy.

3. Direct sale without intermediaries: generates fair trade, that is, a fair price and quality both for the consumer and for the pro-

ducer. It also eliminates commercial monopolies as the producers themselves market their products, as a contribution to social-economic equity, generating a better income for our producers. The agri-entrepreneur fairs move around US $30,000.00 every weekend.

4. Comprehensive education process: a teaching-learning process covers topics not just related to the technical-productive and commercial part, but also self-esteem, human relations, rights and equity. This education is complemented with the organisational strengthening and the technical support provided by the staff of Agroazuay, focused mainly on planning the agricultural production.

5. Monitoring and follow-up: the aim is improve the quality and prices of the products that are marketed, seeking equilibrium between the interests of producers and consumers. We aim to generate decent spaces for our agroproducers and adequate conditions to exchange products, carefully observing the quality and hygiene of marquees, drawers, shelves, aprons at each stall.

"Giving up the best of the worlds does not mean, under any circumstances, giving up the best world" (Morin, 2002)

Our fair has social and political elements that break away from the current economic system, which is why the challenges are great. We need to recuperate the community vision beyond the rural area, by promoting associativism and social self-control to guarantee better agricultural products. In parallel, we need to promote this community vision in urban spaces, generating a greater awareness in the consumers towards social and economic responsibility when deciding which product to buy or not.

We know that the commitment of the Provincial Government of Azuay means promoting not only new production methods but also recovering cultural visions of the minga (farm work carried out in exchange for food) and of the meeting, understanding that our province does not only advances with the action of the public institutions, but that it also demands social co-responsibility of each one of the inhabitants who, with their actions, may have an influence on better living conditions at individual, family and territorial level.

In total, 421 families of small agroproducers and 1500 families of consumers benefited from the Project. Achieved results by the agri-entrepreneurs:

- 200 small agri-entrepreneurs have improved their income by 72%.
- 200 small agri-entrepreneurs market their products directly.
- 33 participating associations + 159 individual participants.
- Participants 363 women + 58 men.
- 421 families, with a total of 1768 direct beneficiaries.

Achieved results by the consumers:

- 1500 families purchase at the Fair.
- 1500 families consume clean, healthy and fresh products.
- 1500 families have diversified and improved their food diet.
- 1500 families have reduced their food expenses by 34%.

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RIO DE JANEIRO • BRAZIL

Sustainable Rural Development Programme in Micro-watersheds

The Rio Rural Programme was created to promote the sustainable development of the agricultural sector, within a scenario of environmental degradation and rural impoverishment caused by historical land use cycles of unsustainable and low productivity agriculture systems – especially coffee, sugar cane and pastures. This situation has been exacerbated due to lack of planning and lack of integration of public policies to address the main social, economic and environmental problems at territorial level.

Most of small farmers of Rio de Janeiro were unable to access public policies and deprived of adequate resources, technologies, market insertion and support to implement sustainable, efficient and profitable production systems in their communities. The lack of an associative culture also established a social environment unfavourable to local development and to face common challenges of their territories, as well as to promote biodiversity conservation, climate change mitigation and reverse land degradation in the most critically degraded and endangered remaining areas of the Atlantic Forest biome in the state of Rio de Janeiro.

The goal of Rio Rural is to engage farmers, especially small farmers, in global efforts to reverse land degradation, deforestation and soil erosion, promote biodiversity conservation and climate change mitigation, also encouraging the adoption of sustainable techniques for income generation adequate to local vocations.

Rio Rural has been using micro-watershed as a methodological approach fostering improvements in rural production processes within a framework of market-driven agricultural development, provision of environmental services and adaptation of the rural sector to climate changes. It focuses on sustainable intensification of smallholder farmers, adding value and improving market linkages.

The programme promotes family farmers' empowerment, strengthening community organisation through capacity-building processes and encouraging associativism, raising awareness about environmental issues and promoting farmer's social and productive inclusion, so they can act as main partners in the sustainable management of natural resources and eco-friendly agriculture.

Implemented by the State Secretariat of Agriculture and Livestock of Rio de Janeiro, with funding from the World Bank (2010-2018), Rio Rural integrates income generation, food security and good governance strategies with technical support and financial incentives for the adoption of sustainable management practices that can provide environmental services: soil conservation and water protection, carbon sequestration and conservation of the biodiversity of the Atlantic Forest.

Rio Rural is now present in 251 micro-watersheds in 72 municipalities, extending its actions to almost 80% of the State (366 micro-watersheds). Until 2018 the Programme will engage 47,000 farmers in development actions, benefitting 20,000 with direct financial incentives and technical assistance to improve productivity, achieving 200,000 hectares of agricultural land under improved production systems. As a counterpart integrated to their production systems farmers agree to implement conservation and restoration practices in their lands, contributing to C sequestration, water protection and conservation of Atlantic Forest biome.

These households are increasingly adopting practices such as reforestation, spring protection, recovery of riparian vegetation and protection of water recharge areas, sanitation, road rehabilitation, green and organic manure, among others with direct impact on natural resources. Among these are more than 100 practices that have been contributing to adaptation of rural lands to the emerging climate changes such as the long droughts that affected most of the South-eastern Brazil in 2014-2015.

In order to stimulate smallholder's transition

Agriculture and climate change

to sustainable and agroecological systems, Rio Rural articulated the Network of Research, Innovation, Technology and Sustainable Services in Micro-watersheds, involving 19 partners among universities and other research, educational and extension institutions in participatory processes to improve dissemination of agroecological systems. With focus on organic food production, the network has fostered the adoption of good agricultural practices and supported certification of 100 farmers, contributing to increase organic food supplying in Rio de Janeiro, the second largest consumption market in Brazil.

All activities and projects are discussed within the community participation and set out in executive micro-watershed plans. The own farming families find out priorities and establish how to take action in order to change local problems, while Rio Rural provides technical framework and encourage local actors to raise funds directly.

The programme also implements strategies to increase access of small farmers to public policies, supporting identification of opportunities and pursuit of co-funding from various institutions including the private sector, in order to supplement ongoing development activities. As a result of its co-financing strategy, the programme raised US$13,8 million funding for projects in different areas such as technological innovation, income generation, environmental conservation and culture.

The most challenging aspect for Rio Rural is to guarantee financial sustainability of rural activities, providing long-term income generation. The economic factor is determinant to keep the development process continuous and evolutionary, adding more families to it. Capacity building and social capital play a key role in this process as they contribute to raise awareness about the relations between profitability of household production, environmental conservation and community organisation to access and meet market demands.

Insufficiency of rural extension services in order to improve farmers' skills and transfer of sustainable technologies is also a problem that must be faced with partnerships with educational institutions and the private sector.

47,000 farmers (51% of the total rural population of the State of Rio de Janeiro, Brazil), resident in 366 micro-watersheds of 72 municipalities, benefited from the programme, which also generated the following results:

- 37,000 farmer families benefited.
- 266 micro-watersheds.
- 49,073 hectares of agricultural land under improved production systems.
- 4,000 subprojects executed to improve production systems and conservation.
- 29,000 farmers, technicians and local actors involved in capacity-building activities.
- 242 micro-watershed Management Committees established, with 2,302 members.
- 207 Micro-watershed Executive Plans (PEM) designed.
- 42 Participatory Research Units implemented.
- 5,526 sanitation projects implemented.
- 21 mechanized patrols + 32 soil conservation patrols implemented.
- 5,706km of roads rehabilitated, benefiting 27.958 farmers.

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BRITTANY • FRANCE

Implementing measures against climate change

Brittany is the first agricultural region of France. But agriculture is also a matter of concern for the region, as the activity represents 40% of its GHG emissions. Livestock, as well as poly-culture (cereals and vegetables) constitute the primary agricultural activities. Besides that, agriculture is one of the few sectors facing all aspects of climate change governance: climate change adaptation, reduction of GHG emission of energy and non-energy sources, carbon storage, the development of renewable energy, reduction of energy consumption.

If farmers already have to modify their practices according to yearly meteorological hazards, climate change will cause even more significant fluctuations, which are able to threaten the economic equilibrium of the harvest. In order to adapt and reduce the impact of these fluctuations, the region of Brittany engages with its farmers in different activities, identifying and enacting actions with positive economic and ecological (biodiversity, water quality) outcomes. These actions are part of **Brittany's Climate-Energy Territory Plan**.

Actions to reduce emissions from the agriculture sector are being implemented by the Regional Council of Brittan, together with the Regional Chamber of Agriculture and national services in the region. These actions are based on three principles:

1. Reducing energy consumption and improving energy efficiency of harvests and machinery
2. Developing renewable energy sources
3. Engaging in collective research-related actions

Energy pricing can be a major factor for the economic health of agricultural harvest. In order to limit energy consumption several programs have been developed and used. **The Energy Performance Plan** aims to improve energy efficiency of GHGs to improve isolation, ventilation and the recovery of heat. **The Eco-Energy Plan** subsidises equipment to recover heat in milk tanks and hydro-coolers. Today, more than 1800 dairy farms (or 10% of the farms) have been equipped. **The Vegetal Plan for the Environment** supports the acquisition of energy efficient material in vegetable greenhouses and horticulture.

Moreover, on a voluntarily basis Brittany is promoting projects to reduce methane emissions, providing farmers with financial assistance. As a complementary financial source, the development of these local projects allows the use of organic waste as heat or electricity sources. To date, 48 units are in use for an annual production of 16MWh.

The most efficient projects are those developed collectively by local actors. Brittany opened a call for projects supporting an ecological agriculture being supported by research-related activities. Various projects were received, proposing carbon storage, improvement of food security, the introduction of vegetable cultures, economic sustainability, and environmental conservation.

When implementing these actions, knowledge constitutes a critical factor: the forecasting of the effects of climate change on agriculture and harvest, the identification of cost/benefits of actions, the understanding of the effects of actions on biodiversity or water quality. The Regional Council needs to work in partnership with research labs and experts, and for such it requires time and often a shift of public policy.

By 2012 the regional Council promoted 7.818 TEP of consumed energy, produced or substituted, with 2,9 million Euros invested in these projects.

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SIMON BOURCIER

BASQUE COUNTRY • SPAIN

Deployment of regional climate change policy at the local level through Udalsarea 21

In Euskadi, the platform of action to deploy regional policies at the local level is Udalsarea 21, the Basque Municipalities' Network for Sustainability. Climate change is a clear example of the need to implement global policies locally. Udalsarea 21 was established in 2002 with 16 municipalities. Currently it counts on 198 city members, involving more than 99% of Basque's population.

Actions on climate change were intensified after the adoption of the Basque Plan to Combat Climate Change (2008-2012). The regional government comprehended the importance of actions undertaken by municipalities on sustainable mobility, energy efficiency, use of renewables, etc. In consequence, it was aware of the need to develop tools to support action on the local level, initially in inventorying and reducing emissions, and subsequently in adaptation to climate change.

Since 2007 several working groups have been established, with the participation of over 50 municipalities, including capitals to rural municipalities. The different working groups are set around the following functions:

- Efficient communication and experiences exchange among municipalities with similar needs.
- Group learning focused on concrete expert-led actions.
- Creation of common resources available to all member municipalities of the network.
- Coordination and alignment with regional and international policies.

Many unquantifiable actions have been developed, such as identifying best practices and capacity-building on the following topics: urban planning and sustainable mobility, biofuels, energy saving and efficiency, renewable energy, sustainable building, carbon sinks, municipal solid waste and adaptation to climate change. Furthermore, quantitative aspects also have been developed, such as tools for calculating emissions for both the city and municipal facilities. In conclusion, it has established a roadmap on climate change for the different municipal profiles of the Basque Country.

As a result, Basque cities now have:

- Tool for inventorying local GHG emissions, which allows both analysing and comparing evolution scenarios.
- Guide for the elaboration of Local Strategies to Tackle Climate Change.
- Model with guidelines on climate change for the local level.
- Guide to develop local adaptation programmes.
- Urban planning practical handbook on mitigation and adaptation to climate change.

Currently, over 90 municipalities are estimating the reduction of GHG emissions, 6 municipalities have adopted specific bylaws on climate change, 30 municipalities have Local Climate Change Programmes and 2 municipalities a Municipal Climate Change Programme.

In addition, since 2008 the annual call for proposals of the Basque Government Department of Environment to local bodies has a specific line to support climate change projects with an annual average emission reduction of 25,000T.

The establishment of the new Basque Climate Change Strategy 2020 will offer new challenges and opportunities for implementing climate change policies, coordinated with both international and local specific projects.

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CATALONIA • SPAIN

The Pyrenees Climate Change Observatory – OPCC

The European Territorial Cooperation initiative is integrated by all governments of the 8 bordering territories i.e. Andorra, Spain (Basque Country, Navarre, Aragon and Catalonia) and France (Aquitaine, Midi Pyrenees and Languedoc-Roussillon).

The OPCC is structured around 3 main bodies:

- Political Council: political authorities to ensure economic viability and guidance.
- Technical Committee: bringing together territorial CTP decision-makers working with a project coordinator.
- Scientific Council: made up of 25 internationally recognized experts and scientists from the participating territories.

OPCC benefits from EU regional funds (ERDF) under the Operational Programme for Territorial Cooperation Spain-France-Andorra 2007-2013 (POCTEFA).

During its first Action Programme (2010-2013), the project developed 7 actions: Adaptation, Biodiversity, Climate, Water, Forest and natural risks, Remote sensing, Human activities and Information structuring. To monitor and assess the development of the projects, working groups integrated by members of the Technical Committee, Scientific Council and the Partners have been created.

One of the actions, Adaptation to climate change at the Pyrenees, had its work carried out as a true partnership between the governments of all territories of the OPCC. This study was presented at the annual meeting of the European Environment Agency (EEA) about adaptation. OPCC received an excellent feedback from EEA who highlighted that the study goes deep into adaptation measures existing at the territory, extend its scope beyond mere monitoring of impacts of climate change.

Climate Action is another flagship for the OPCC project. It is the development of a unique database of high quality climate series based on precipitation, temperature, and the definition of common indicators to all territories of the Pyrenees. Universities and the Met Offices from all territories worked together to achieve this unique case in Europe.

Decentralised cooperation and territorial partnerships for climate action

OPCC has participated in many international fora and has put on the European map the Pyrenees as a flagship of cross border cooperation in mountains areas. Furthermore, OPCC has participated in technical reports of EEA (Climate change, impacts and vulnerability in Europe – 2012; Adaptation in Europe – Addressing risks and opportunities from climate change in the context of socio-economic developments – 2013; and the Opinion of Committee of Regions about adaptation in Europe).
On November 7h 2014 OPCC organized an international meeting about climate change and mountains to present the results from the first project carried out. The event was attended by representatives of EEA, CoR, Alpine and Carpathian Convention and the CTP.
OPCC organized a meeting with the EEA, CTP and the Alpine and Carpathians Conventions to work on a future European Mountains Network.
Currently, the Political Council is working on the necessary economic viability of the project while OPCC is preparing for the new European Territorial Cooperation Programme 2014-2020.
During 2014, OPCC main objective was to share all the knowledge with the local stakeholders to enhance local awareness and capacity building, this action being fully supported by Andorra, the new CTP presidency.

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OPCC

Oficina Catalana del Canvi Climàtic

FATICK • SENEGAL

To emit less GHG towards climate-resilient territories, in the framework of the Territorial Approach to Climate Change

Within the partnership launched by the UNDP in collaboration with 6 regions of Senegal, the Territorial Approach to Climate Change (TACC) programme started up with the support of the Government of Senegal. The programme is also supported by Catalonia, Belgium, and the French provinces of Rhone-Alpes and Poitou Charentes. Action is being taken in the regions of Fatick, Kaffrine, Matam, Tambacounda, Saint-Louis, and Louga.
The main aim of the programme is to enable the mentioned Senegal regions to have an Integrated Territorial Climate Plan (ITCP) that may:

- Enable the creation of a governance framework adapted to CC.
- Reinforce the capacities of local actors towards CC adaptation and mitigation.

Decentralised cooperation and territorial partnerships for climate action

• Integrate the CC issue in the sustainable planning.
• Start up adaptation pilot projects (environmental training and raise of awareness, promotion of renewable energies, reforestation and biomass, etc.).

The results achieved up to the moment by the programme are very significant:

• In each pilot region, a Regional Commission for Climate Change was created to establish a governance framework and to harmonize the actions to be taken in the field of CC.
• Local actors have participated in numerous sessions addressed to the reinforcement of their capacities. Today, they are efficient enough to deal with the constraints that climate and carbon bring to their lives.
• The ITCP are currently going on in the Fatick region. Fatick holds an environmental profile as well as a vulnerability/resilient study on the region.
• Regarding pilot projects, the programme successfully brought electricity to 10 villages thanks to solar photovoltaic power; 22 schools in the region are currently developing the Fatick Green School Project; and, the experience on biogas and improved households is being disseminated in rural areas of the region.

Despite the above results, an important number of challenges still need to be addressed. In particular:
• The need to count with more partners that may provide technical and funding assistance. In this sense, nrg4SD members with similar experiences to the ones described above are called to provide us with their technical expertise.
• The need to count with more funds in order to benefit the maximum number of citizens in our region.
• The need to reinforce the technical capacities of those development agents, in order to improve the approach to CC within the different developing options.

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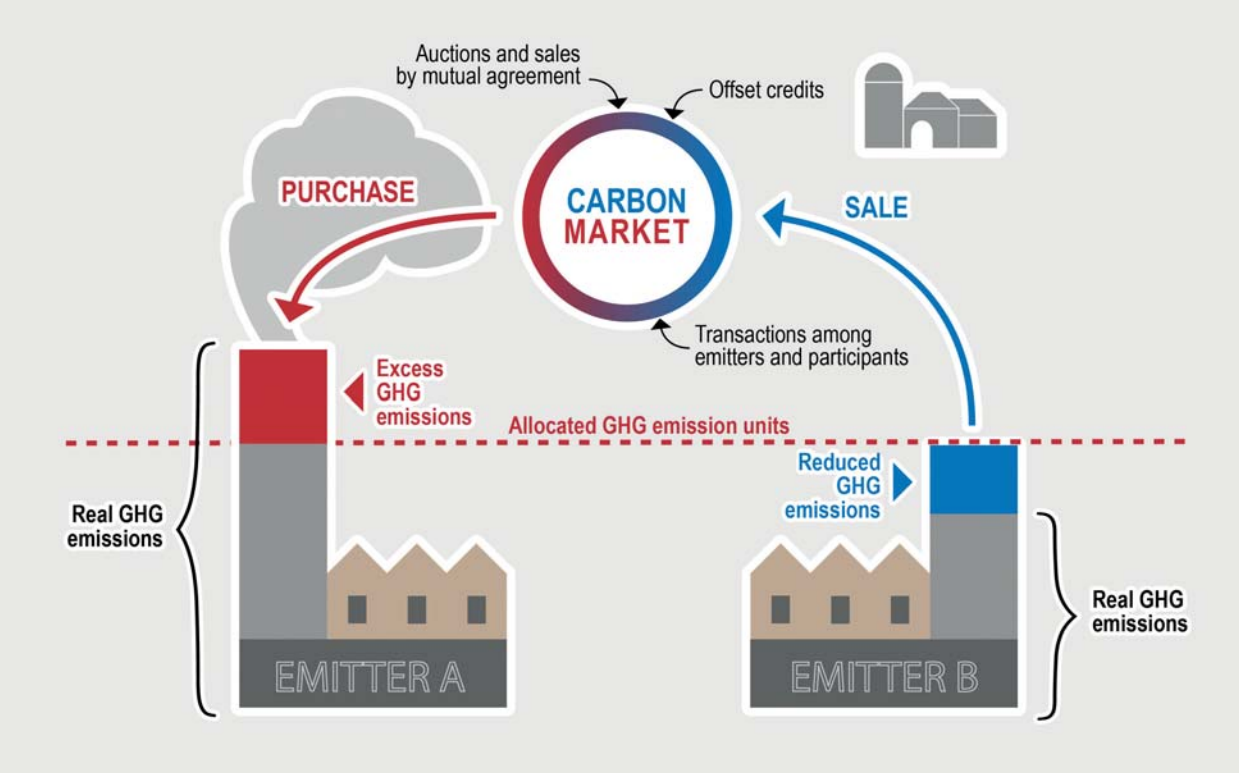

QUEBEC • CANADA

The Quebec and California carbon market – partnership across North American borders

January 1st 2013 marked the beginning of a new era in the fight against climate change in Quebec: on that day, the very first compliance period for the Quebec cap-and-trade system began.

A cap-and-trade system for GHG emission allowances (C&T system) is an economic tool that reduces total greenhouse gas (GHG) emissions. An overall cap on GHG emissions is imposed annually to all emitters covered by the system. This cap will be lowered gradually over time, generating absolute reductions in GHG emissions. Using market forces to encourage the cheapest reductions, the C&T system provides flexibility to emitters with respect to the means of complying with the requirements, thereby reducing overall mitigation costs.

The development of Quebec's C&T system is inextricably linked to the creation of the WCI. This forum was created in 2007 by California and other US States and Canadian provinces. The goal was to develop a common approach to reducing greenhouse gas emis-

sions, including the creation of a regional carbon market. Quebec joined the Western Climate Initiative in 2008 and became a very active member in the development of WCI rules, in collaboration with the other partners. The following year, the Quebec National Assembly adopted a bill allowing for the implementation of a GHG emissions cap-and-trade system on its territory.

In 2011, the Canadian provinces of Quebec, Ontario, and Manitoba along with California created WCI Inc., a non-profit organisation providing administrative and technical services to support the implementation of C&T systems. These services consist in developing and operating a tracking system for GHG emission allowances, overseeing government sales of emission allowances, implementing a market monitoring system, and providing assistance to participants.

That same year, the Quebec government adopted amendments to its GHG mandatory reporting Regulation to bring it in line with the rules adopted by the WCI. Companies emitting more than 10,000 tons of CO_2 into the atmosphere have since been required to declare their GHG emissions. This data allowed the government to identify Quebec's major emitters and create its C&T system. Also in 2011, Quebec adopted a regulation setting out the system's operating parameters, which are based on the WCI guidelines published in 2008 and 2010. The Quebec regulation was amended in 2012, in order to make room for the linking between Quebec's and California's carbon markets, which are the first two WCI jurisdictions to implement C&T systems.

The Quebec C&T system presently covers large emitters in the industrial and electricity production sectors. The threshold is 25,000 t CO_2 eq annually. Starting in January 2015, fossil fuel distributors will be covered by the C&T system. At that time, it will cover around 86 % of Quebec GHG emissions.

A first auction sale will be held on December 3rd, 2013. Revenues generated by the annual auctions will be reinvested in GHG reduction measures and adaptation initiatives. It is presently estimated that the Quebec C&T system will generate more than 3 billion dollars from now to 2020. The official linking of Quebec and California's carbon market has been completed and will take effect in January 2014. The partners are aiming to hold their first joint auction in the spring of 2014.

The collaboration shown by Quebec and California within the WCI framework is an excellent example of North American regional cooperation that is economically and environmentally beneficial for both partners. Quebec and California are also working towards expanding their carbon market, and are hopeful that other North American partners will join it.

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SÃO PAULO • BRAZIL

Bilateral cooperation action with Ile-de-France

The Memorandum of Understanding was signed by the parties on 10 November 2014, and a working group has been established to continue negotiations to sign a Cooperation Agreement. After the MoU, the Secretariat for the Environment has started a Working Group to work on a Cooperation Agreement within our institution and Île-de-France. This partnership will also integrate actions previously discussed among the IDF, the Secretariat for Housing and the Secretariat for Planning which will probably lead to a São Paulo Government Programme, one of the main goals of Subnational Governance.

The cooperation envisages:

• Management, prevention and adaptation to geological and hydrological risks, including the use of information systems.

• Monitoring, planning, zoning and management of water, in particular related to subterranean water conditions and superficial water springs.

• Subnational policies related to GEE gas emissions and climate adaptation, as well as its insertions in national contexts.

• Preparation for and participation in the Biodiversity COPs and in the UNFCCC COP21, emphasizing the possibility of articulation and partnerships amongst subnational governmental networks, such as the Network of Regional Governments for Sustainable Development (nrg4SD) and The Climate Group.

The Governments of IDF and São Paulo will benefit by strengthening territorial leadership; the public, private and academic actors will be able to work on implementing decentralized Governance; and the citizens of the State of São Paulo and of the Île-de-France Region will be positively affected by the study.

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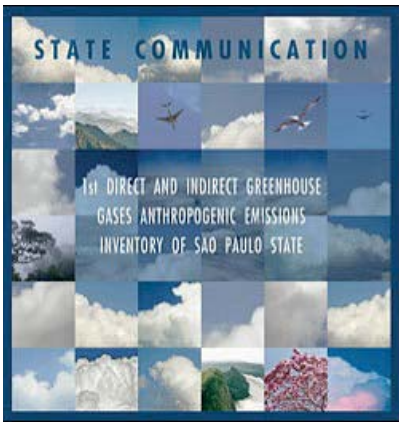
SÃO PAULO • BRAZIL

Inventory of Greenhouse Gases anthropogenic emissions (1990-2008)

The project "Support to São Paulo State Climate Policy" was initiated by CETESB and the State Secretariat for the Environment, through the Climate Change Programme (PROCLIMA) initiated in 2008, with the support of the British Embassy in the elaboration of the Inventory of Greenhouse Gases (GHG) of the State of São Paulo, following the methodological guides developed by the Intergovernmental Panel on Climate Change (IPCC), and also adapted to the circumstances of an inventory elaborated by a subnational government, compatible with the Brazilian's National Inventory. It is noteworthy that, at the moment, São Paulo is the only Brazilian State that has emissions inventoried in such fashion for the period 1990-2008.

The Climate Change Policy, defined by the State Law 13,798 of 2009, set the challenge of publishing the GHG Inventory in November 2010, which has been possible, mainly due to this cooperation.

To accomplish this goal, PROCLIMA established a group that gathered 120 partner institutions and 320 researchers and experts from the inventoried sectors, working to raise the data today displayed in the inventory. The resources provided by the cooperation were used to establish and implement accords with about eight institutions that supported directly the elaboration of the main reference reports from each of the five sectors (defined by the IPCC to conduct the



inventory, namely: land and forests use and change; solid waste and wastewater; energy; industrial processes; and agriculture) and of the 23 subsectors inventoried, which compose this State Inventory.

These reference reports of each one of the 5 sectors defined by IPCC and the sector-specific reports were made available for public consultation. Contributions were made through this consultation process, which lasted for 8 months. It was a complex process and it is documented on the Internet [http://www.cetesb.sp.gov.br/mudancas-climaticas/inventario-gee-sp/Consulta-P%C3%BAblica/168-Consulta] (in Portuguese).

The State Inventory, along with other technical studies, is a fundamental tool to guide mitigation public policies, because it allows precise identification of sectorial emissions' origin. Besides, it supports the definition of mitigation policies and the achievement of the Climate Policy CO_2 reduction target.

The cooperation with the British Embassy enabled capacity building, as a CETESB technical team visited UK to learn from their inventory, climate policies and experiences; put us in contact with relevant national partners, who also developed cooperation with the UK embassy; and above all, it expedited the whole process. Therefore, it was an extremely important and strategic cooperation, and somehow at that time, it fostered the proposition of São Paulo's law. This cooperation completed at the end of 2011 still shows positive results, since some of the sectorial reports have been reviewed, and consequently, new editions of the document are being published. The inventory is also available online [http://www.cetesb.sp.gov.br/inventario-gee-sp/inventario-esp/282-1st-direct-and-indirect-greenhouse-gases-anthropogenic-emissions-inventory-of-sao-paulo-state] (in English).

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RHONE-ALPES • FRANCE

Rhone-Alpes Observatory on Climate Change Impacts

Climate change is a constant in the work led by Rhone-Alpes and the regional delegation of the French Environment Ministry (DREAL). During the elaboration of the regional climate-energy air-scheme, it was clear that the already existing impacts will likely increase in the future: a rise in average temperatures, melting glaciers, changes in rainfall, among others.

The need to improve and to share climate knowledge, its evolutions and effects on regional territory, has been identified as a key issue. To carry this out, Rhone-Alpes region and the DREAL have decided from 2012 to create the Observatory on Climate Change Impacts (ORECC) to enable all the stakeholders, including local governments in charge of the implementation of climate programmes, to:

- Have access to data.
- Share knowledge.
- Make accessible methods and analyses to elaborate strategies and implement actions to adapt to climate change.

As a sensibilisation tool, this ORECC is designed to be used by public bodies, NGOs, the economic sector, universities, and the public at large, among others. It can be seen as a multi-level governance, reflecting the partnership and the co-building nature of the project.

The management and the operation of the ORECC are provided by several bodies:

- Steering committee, made up of the 3 founders and main funders of the project: the State (Direction Régionale de l'Environnement, de l'Aménagement et du Logement), the Rhone-Alpes Region, and the ADEME (Agence nationale de l'environnement et de la maîtrise de l'énergie), it is in charge of the agreement of the operative programme and the key outcomes. The steering committee is supported by a secretariat and a technique operator.
- Policy committee, which is the heart of the network of ORECC's partners. It is composed of elected representatives and leaders of local communities, state and public institutions, research organisations, and civil society. Its role is primarily to guarantee the utility of the observatory's production in rep-

resenting the interests and needs of the users of the data and analysis produced. It debates and proposes strategic orientations for the work of the ORECC, it gives its opinion on the ORECC's annual programme and publications.

• Working groups composed of representatives of institutions, local communities, economic actors and experts, build on focused topics, using a socio-economic process approach. Two working groups were created: tourism and agriculture-forestry, which are the two sectors specifically vulnerable to climate change in Rhone-Alpes. These working groups will bring together actors involved in one vulnerable to climate change economic sector, and create a dynamics on the subject; share knowledge about climate change concerning the chosen topic; and produce indicators to help to adapt economic activities to climate change.

• An annual regional meeting, to disseminate on a large scale the results of the work of ORECC and to generate commitment of new partners to the project.

Thought of as a partnership and co-built tool, ORECC aims at pooling, organizing, and making available all the data produced concerning climate change in Rhone-Alpes, in a more understandable way and in a more easily accessible form. It also acts as a think-tank, enabling the emergence of new initi atives, whether in the field of knowledge or in the implementation of strategies or action plans. Finally, it also seeks to connect itself to the already existing tools, whether at national or sub-regional levels.

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WALLONIA • BELGIUM

Fast Start Programme

Following Copenhagen Accord of December 2009 and the commitments from developed countries to provide fast start financing to developing countries, the Walloon Region decided to act accordingly and to develop amongst others a bilateral programme named Initiative Fast-Start Wallonie.

In 2010 and 2011, the Walloon region launched two calls for projects in partner countries: Benin, Burkina Faso, Burundi, Democratic Republic of Congo, Rwanda, Senegal and the Republic of Haiti. The main objective is to offer a concrete response to the local impacts of climate change either by adaptation actions, mitigation actions or improved management of energy efficiency. Areas such as fight against soil erosion, water management, agriculture, fight against desertification, reforestation and forest management or waste management are considered as priority sectors.

Furthermore the goal is also to empower local communities, to reinforce their capacities and allow them to become key actors of their success so as to truly share with them the benefits of such actions. The programme seeks to encourage projects which are sustainable and that eventually could become self-supporting or an example that could be replicated in other communities.

The projects submitted are developed through a collaborative process. Concretely, that means that when a draft proposal is accepted by the Advisory Committee it is further elaborated by the project proponent with the help of experts and a financial assistance.

Projects are funded by means of grants and supervised by the Walloon Agency for Air and Climate. Wallonie Bruxelles International is also involved in the programme as a member of the Advisory Committee. The Institute of Sustainable Development of La Francophonie (IFDD) supports the programme, too.

In total, 18 projects were selected and are running today or will start soon. Together with other subventions they amount for a total of 8.4 million euros. The funds are new and additional to the traditional Official Development Assistance.

The selected projects are very diverse: improvement of artisanal production of charcoal, wood-efficient cooking stoves and plantations in Benin; micro-irrigation of vegetable crops in Senegal, plantations in rain-eroded land slopes in Rwanda; waste management system (waste collect, valorisation) in Haiti; adaptation of agriculture practices to climate change in RDC, among others.

The first results of this bilateral programme are encouraging. It is a flexible collaboration initiative that has been able to get quick impacts on the ground while it was a totally new programme for the Walloon Region and their partners. Results show that these local oriented projects have been able to address climate change impacts as well as to contribute to tackle other issues (such as poverty, women participation, capacity building, etc.).

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SÃO PAULO • BRAZIL

Programme on Geological Risk Reduction and Prevention of Natural Disasters

The main natural hazards faced by the State of São Paulo are related to hydro-meteorological events such as landslides, erosion, floods and storms. Nevertheless, major events are unlikely to occur; disasters and accidents happen because of improper urbanization, increased by extreme conditions caused by climate change. As a result, significant casualties and injuries, economic losses and displacements observed yearly point out deep social vulnerabilities that risk increasing.

Statistical data on the period between 2000 and 2010 show that hazardous events have caused an average of 31 casualties and 20.000 displacements each year in the State of São Paulo.

The year of 2009 represented a turning point in São Paulo's approach to the above-described hazards through the enactment of a law that establishes preliminary strategies for disaster risk management: the São Paulo State Policy on Climate Change. In 2011, a State Decree also laid out the Geological Risk Reduction and Prevention of Natural Disasters Programme (PDN), with deeper strategic guidelines. The PDN aims at integrating the Civil Defence Team with other sectors of the Government of São Paulo, such as the Housing, Environmental and Territorial Planning, Transport Sector and Education Sector. This promotes conditions to the arising of a new culture in disaster risk management, based on prevention. Rather than concentrating on the response to disasters, the new strategy focuses on avoiding the formation of new risk areas, or at least on decreasing the rate by which they appear. The PDN programme pointed out 122 critical actions, aligned with five themes: Risk Analysis and Diagnosis, Territorial Planning, Education and Training, Monitoring and Inspection and Mitigation and Eradication.

Since November 2011, the following results were obtained through the creation of the PDN:

- Better monitoring of the issue at the international level, for example through the participation in the UN Resilient Cities Campaign and the Sendai Conference in 2015.
- Enhanced dialogue with federal organs, in particular in the areas of risk mapping (Geological Service of Brazil), monitoring (CEMADEN) and territorial planning (Ministry of Cities).
- Increased synergy among State organs related to civil defence, environment, housing, transportation, hydrological resources and academic.
- Better comprehension and deepening of concepts and methodologies related to risk analysis and evaluation, from a territorial and multi-scale approach, using indicators and indexes for the calculation of variables related to hazard and vulnerability.

• Enhancement and enlargement of statistical data and registry of events and disasters.
• Increase of risk perception studies with communities situated in dangerous areas, as well as the search for increasing involvement of these communities through educational activities and actions.
Still, a few challenges were faced when implementing the programme:
• Difficulties for sectors which are not directly linked to civil defence and protection to recognize this theme as a priority.
• Little integration among the federal, state and municipal levels.
• Reduced legal, institutional and budgetary framework, including the lack of regulation of legal instruments related to disaster risk management, in particular Federal Law 12,608/2012.
• Lack of policies related to housing and territorial planning adapted to disaster risk management.
• Inefficiencies in the monitoring and maintenance of public spaces and infrastructure.
• Deficiencies in the systems of risk evaluation, monitoring and alert, including the necessity of deepening the analysis and mapping methods of hazards, vulnerability and risks with a probabilistic approach and the geo-referencing of inventories of events, accidents and disasters; mostly communities and citizens are unable to evaluate their vulnerabilities and risk.
• Low capacity of using scientific studies to elaborate and implement public policies on disaster risk reduction.
The institutions involved in the programme are the Secretariat for the Environment of the State of São Paulo, the Institute of Geology of São Paulo and Civil Defence. Partners include the Housing, Environmental and Territorial Planning, Transport and Education Sectors.

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ANTOFAGASTA REGION • CHILE

Adaptation to climate change in Andean wetlands

The Regional Ministerial Secretariat for the Environment of the Antofagasta Region (Ministry of the Environment of Chile), with support of the Regional Fund for Regional Development (FNDR), is developing a study of the high Andean wetlands in northern Chile (Antofagasta region). The ecosystem in this area is characterized by its ecological significance, by the ecosystem services it provides, as well as by its vulnerability.
The vulnerability of the high Andean wetlands is connected to climatic reasons, such as an increase in temperature and decrease in precipitation, and also to anthropogenic reasons, including increased pressure from productive activities and the expansion of human settlements. Synergistically climatic and anthropogenic reasons are causing adverse cumulative effects in the region. These effects (e.g. soil salinization and desertification, loss of vegetation cover, reduced groundwater recharge, loss of biodiversity, deterioration of the landscape, etc.) have direct negative impacts on ecosystems and indirect health and safety of people (e.g. occurrence of landslides through erosion) and the development of local productive activities (e.g. tourism, agriculture, livestock). This situation is particularly complex in a scenario of global climate change.

Dr. Francisca Díaz (Pontificia Universidad Católica de Chile) giving a lecture on climate in the city of Calama, during the launch of the project climate adaptation in the Andian wetlands

The project consists of a diagnosis of Andean wetlands, with the aim of establishing pilot measures of adaptation to climate change, which will be implemented locally by native communities (Likan Antai and Quechua).
Because the high Andean region is directly experiencing the effects of climate change, it is crucial to promote adaptation to this new reality. The proposition of adaptation measures to climate change (restoration and/or preservation) should consider a diagnosis of existing information, identifying threats, impacts and vulnerability of the Andean wetlands. Along with this, it is important to add efforts in capacity building within public institutions and local communities, who are beneficiaries of the ecosystem services. This study seeks to account for these steps, to define and implement such pilot actions to adapt to climate change, to avoid impacts on high Andean wetlands and local communities about the users of these priority regional environments.

The study will provide:

• Collection and systematization of the existing biotic and abiotic information on Andean wetlands in the Antofagasta region.
• Prioritization of the Andean wetlands upon which to implement the plan of conservation and recovery measures.
• Characterize uses, pressures, threats, describing various aspects as well as the state variables and the forcing.
• Identify, characterize and model ecosystem goods and services selected wetlands and its relation to climate change effects.
• Develop a survey of key stakeholders directly and indirectly linked to the way the study area.
• Conduct outreach activities.
• Propose, agree and implement measures pilot restoration and conservation of Andean wetlands as a measure of adaptation to climate change.
• Propose a portfolio of projects associated with the implementation of measures to adapt to climate change.
• Develop an outreach and awareness study at regional and local level, through various print and broadcast media.

The project is under implementation, but the expected results are:

• Characterization of high Andean wetlands; propose pilot adaptation measures; have results of the implementation of pilot adaptation actions; and engage the community and work on dissemination and awareness.
• Develop dissemination materials such as posters, leaflets, and educational guides.

CONTACT INFORMATION

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CATALONIA • SPAIN

MEDACC: Adapting the Mediterranean to climate change

The MEDACC project (LIFE12 ENV/ES/000536 Demonstration and validation of innovative methodology for regional climate change adaptation in the Mediterranean area) is a 5-year multi-actor project which started in the summer of 2013. The project, supported by the EU LIFE+- Environmental Policy & Governance programme, has a budget of 2.548.841€, being the European Commission contribution of 1.266.208€.

MEDACC aims at testing innovative solutions in order to adapt agro-forest and urban systems to climate change in the Mediterranean basin. Thus, MEDACC contributes to the design and implementation of adaptive strategies and policies which are being developed at national and regional level in the Euro-Mediterranean area. In Catalonia, MEDACC will be a key tool in the implementation of the Catalan Strategy for Climate Change Adaptation (ESCACC 2013-2020).

In order to achieve these objectives, MEDACC will implement pilot actions to test adaptation measures in the agriculture, forestry and water management sectors. These measures will be designed and assessed by local stakeholders. Expected results will contribute to quantify how adaptation measures can reduce the vulnerability of natural systems and human activities to climate change. In addition, the project will assess the environmental and economic costs related to the application or not application of adaptation measures.

The project will focus on three specific watersheds in Catalonia (Muga, Ter and Segre), chosen to represent the Mediterranean diversity at a local scale. MEDACC attempts to provide a methodological approach extendable to other Mediterranean watersheds.

Actions of the project

• Involvement of local stakeholders, contributing with their knowledge and experience.
• Assessment of the main impacts of climate change and territorial vulnerabilities of three watersheds in Catalonia.
• Diagnosis of previous adaptation measures applied in the watersheds and definition of new adaptation measures to be applied.
• Implementation of pilot actions to test some of the newly proposed adaptation measures in the three watersheds (agriculture and forestry) and to assess alternatives for water management.
• Monitoring the effects of the pilot actions in the three watersheds.
• Result dissemination using different platforms and networks.

Results

Expected project results will contribute to quantify how adaptation measures can reduce the vulnerability of natural systems and human activities to climate change. In addition, the project will assess the environmental and economic costs related to the application or not application of adaptation measures.

CONTACT INFORMATION

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MEDACC
Adapting the Mediterranean to climate change

Segre Measuring water soil content and Segre Pilot in forests

Muga metereological station instalation

CATALONIA • SPAIN

Voluntary Agreement Programme for the reduction of greenhouse gas (GHG) emissions

The Catalan Office for Climate Change fosters and supports the establishment of voluntary agreements with organisations, companies, entities and groups in Catalonia so that they can reduce their greenhouse gas emissions. This Programme is aimed at any organisation that has installations and/or operations that generate GHG in Catalonia, wishing to reduce emissions beyond required by legislation.

All organizations that want to join voluntarily agree to:

• Carrying out an annual GHG emissions inventory. This inventory has to be verified (excluding organisations that fulfil Simplified Procedure requirements).

• Proposing and implementing measures to reduce inventory emissions every year.

The Government of Catalonia encourages these efforts, establishing mechanisms to increase public awareness of them, as:

• To appear on the Programme webpage.

• To access to dissemination activities.

• To use the official label that recognises the voluntary effort.

This programme aims to get the different social stakeholders in Catalonia, involved in reducing greenhouse gas emissions.

Specifically, the contributions of the Voluntary Agreements are:

• To offer a key mitigation tool in public climate policy to make easier to Catalan organizations measure and reduce their emissions which lead to a competitive improvement.

• To reduce GHG emissions in different sectors as: transport, energy, waste, etc.

• To support and recognise organisations leading the way in climate action.

• To raise public awareness of the need to take immediate action for the climate, its benefits and the great potential for collective action.

• To share experience and best practice in reducing greenhouse gas emissions.

• To provide a rigorous, credible and effective institutional response to the significant number of voluntary reduction and offsetting initiatives.

In this way, the Catalan Office for Climate Change wants to help Catalan society to become more aware of the impact that individuals and groups can have on the climate, as well as the vulnerability of society as a whole to fluctuations in fossil fuel prices.

After the launch day of the Voluntary Agreements program in July 2010, several organisations expressed an interest in joining the Programme. Until July 2015, more than 125 organisations have joined the Voluntary Agreement Programme and the number of organizations is increasing exponentially. In the following link you can see organisations are now formally affiliated and you can get the annual reports of these organizations where there is all the information in respect the Program.

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WESTERN PROVINCE • SRI LANKA

Restoring broken school furniture to aware children of the 3R concept

This concept was initiated and developed by the Western Provincial Department of Industries to reduce the burden of financial allocations of the government to produce new school furniture. Renovating school furniture was carried out by trained carpenters of the Western Provincial Department of Industries.

The project focused on enhancing the knowledge of the 3R concept BY school children as it is necessary to raise awareness among them on sustainable development.

This project uplifts carpentry and enlightening engineering industrialists while contributing to the national policy in the construction field through resource repairing; saving up money for the national economy, minimizing resource waste, educating the students on the concept of public property, collectiveness and on 're-use', which is a component of the 3R.

This Project was initiated in 2011 and has been being implemented since then. 204 million in Sri Lankan rupees have been saved through this project. Timber goods worth 241 million rupees have been fixed and reused by spending only 37 million rupees.

The programme was successfully conducted in 885 schools in the Western Province from 2011 to 2014. However, this number is below what was initially planned. Due to financial constraints the programme was conducted in a limited number of schools. Although awareness programmes were conducted on maintaining school furniture, there was no significant reduction in broken school furniture. A lack of transport facilities also posed a challenge to the programme.

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	2011	2012	2013	2014
No. of schools in implementation	165	270	290	160
No of equipment repaired including desks and chairs	19,495	31,976	35,977	21,729
Total cost borne for repairing (Rupees in Million)	6.9	11.1	13.7	7.37
Finished value of furniture that underwent repairs (Rupees in Million)	33.7	65.2	88.7	51.4
Money saved up for government (Rupees in Million)	26.8	54	75	44.03

FATICK • SENEGAL

Integrated Territorial Plan on Climate Change, completed as part of the Territorial Approach to Climate Change programme

In 2008, countries of the North and the countries of the South, in cooperation with the UNDP, agreed to implement a territorial approach to climate change which considers regions as the point of entry in order to address the adverse effects and develop the positive effects of climate change. This approach is currently being materialised at regional level in Senegal through the pilot programme Territorial Approach to Climate Change (TACC). The adoption of this approach in the execution of this programme induces action that requires the completion of an Integrated Territorial Climate Plan aimed at proposing mitigation and adaptation options.

The main objective of the TACC Programme is to foster sustainable local development which takes into consideration climate change aspects. It will be aimed at lowering territorial vulnerability by mapping the physical, social and economic vulnerabilities and proposing mitigation and adaptation options which are directly related to the problems identified.

The actions taken within the Project have been the following:

- The implementation of a governing framework for climate change issues (COMRECC).
- The formation of focal points for members of COMRECC on Carbon Assessment.
- The completion of a Fatick Territorial Carbon Assessment.
- The completion of a study on the current and future vulnerability of the Region to climate changes.
- The drafting of an Integrated Territorial Climate Plan (ITCP).
- The implementation of adaptation and mitigation pilot projects.
- A reforestation project for salt-affected soil.
- A fuel saving stove distribution project.
- A domestic biogas dissemination project.
- An Environmental Education Project.
- A development and management project for 3 forest areas.
- A rural photovoltaic solar electrification project.
- An agroecological pilot farm project in Ndiob.
- Training for local elected officials on the subject of integrating climate change in local development planning.
- Training for key stakeholders on the subject of sustainable development and MDPs.
- The production of a capstone film on the results of the Programme.

The main difficulty lies in the availability of funds because with assigned financing, each financial backer has their own procedures, what has immensely slowed the completion of the activities. The shortage of quantitative and qualitative climate-related data and the lack of local expertise, especially as concerns the completion of the Carbon Assessment, also pose a problem. The Programme had to send the CC Focal Points and certain members of the COMRECC to Paris for training in order to be proficient with the Territorial Carbon Assessment.

To date, the results have been as follows:

- 3 Forestry Development and Management Plans (DMP) completed: For their capacity for carbon sequestration, forests are suddenly a significant mitigation measure when it comes to the effects of climate change. Moreover, the state of the forests has been acknowledged as largely depending on the level of development. These verified documents should be a good reference for forest operators and other users of forest resources so that they may carry out their activities in the best way, all while ensuring resource sustainability.
- 450 ha of salt-affected soil reforested: An extensive salt-affected soil reforestation project was undertaken in the region of Fatick, which is a territory that has been marked by heavy salinization. The TACC Programme has made more than 300,000 plants available to help with the reforestation of 450 ha. These actions have had an impact on 13 villages in 4 rural communities. With a success rate of 80%, reforestation makes it possible to legally produce timber charcoal and also fire wood from wood as a renewable resource if it is properly exploited.
- 1950 fuel saving stoves distributed to rural households: As a programme that fosters reduction in greenhouse gas emissions, TACC has made significant efforts in the production and distribution of fuel saving stoves. In fact, a properly-used fuel saving stove can prevent the emission of nearly 1000 tonnes eq CO_2 per year.
- 66 biodigestor units installed: biogas is no doubt one of the major alternatives for reducing dependence on fossil fuels which now represent more than 80% of the world energy demand. Biogas is also one of the most important mitigation options. In fact, methane (CH4) from cow dung, which is the main input used for these biogas units, has a total reheating power that is 72 times higher than CO_2 over a period of 25 years (GIEC, 2007). This means biogas reduces one of the most significant greenhouse gases.
- 24 villages have been electrified with solar photovoltaic power: better childbirth care, better education, reinforced security, lighted villages – these are some of the solutions TACC has provided as part of its electrification programme, all while maintaining the original spirit which is to reduce greenhouse gas emissions.
- 40 establishments involved in the "Green

Schools" project: the fight against the harmful effects of climate change is not just a matter of adults. It must also be considered a problem to be shared with the stakeholders of the future. This is what led to TACC involvement in the "Green Schools" project which has now been integrated by 40 secondary schools, middle schools and primary schools in the Fatick region.

• 1 agroecological farm was established in Ndiob: Aware that the production and use of mineral manure involve many greenhouse gas emission factors (nitrous oxide), the programme decided to assist with the promotion of an agroecological farm initiated by the Regional Council of Fatick; TACC contributed with supplementary investments for 4 modern wells, 5 solar powered pumps and the fencing.

The beneficiaries of the action are:

• The 40 communes in the Region of Fatick subject to a planning that considers climate change through the Integrated Territorial Climate Plan.

• The forest planters and operators in the Region of Fatick (nearly 250 households impacted).

• The women who use the fuel saving stoves (around 2000 households).

• The rural households that use domestic biogas (66 households).

• The inhabitants of the 24 villages who have benefited from the photovoltaic solar system (12,000 inhab).

• The operators of the agroecological pilot farm in Ndiob (40 people).

• The local elected officials, the focal points, the technical workers in the Region and the key stakeholders have benefited from the reinforced capacity.

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BASQUE COUNTRY • SPAIN

Territorial planning instruments (1990-2015)

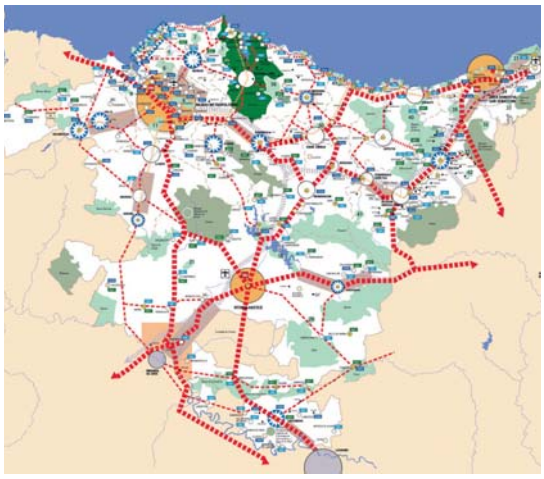
The Basque Country grew rapidly in the second half of the 20th century mainly as a consequence of a heavy industrialization. This industrial-based growth had serious impacts on the sustainability of the territory that had to be addressed through a set of territorial planning instruments.

The Basque Territorial Planning Act (1990) foresees a set of territorial planning instruments:

• The "Territorial Planning Guidelines" aims to define the territorial strategy of the whole region by setting the basic principles and guidelines in relation to density (i.e. reduction of the soil consumption and of the energy necessities), the environmental protection (i.e. need to preserve the ecological values of the environment), the global distribution of human activities in the region (i.e. energy-efficiency and mobility), the protection of the territory (i.e. prevention of the soil erosion), among others. Regarding the climate change mitigation, the Territorial Planning Guidelines has been pioneering in establishing a set of criteria for the urban plans to calculate the number of new housing required in order to make it sustainable, avoiding the use of unneeded soil. Besides, the Territorial Planning Guidelines matrix showing the allowed type of uses of the land helped classifying lands as not for building.

• The "Territorial Plans" consists of one detailed plan for each of the 15 areas identified in the Basque Country. The Territorial Plans bring the Territorial Planning Guidelines to the concerned area by identifying special places to protect/to manage; by defining land reserves that can be assigned to the creation of green infrastructures; by promoting new developments integrated with the existing towns; by establishing minimum densities in order to consume less energy and to reduce the urbanization of new soil; and by promoting the use of public transport systems, among others.

• The "Sectorial Territorial Plans" deal with the territorial perspective of a specific issue and they are applicable to the entire region. They provide specific guidelines in order to guarantee, for instance, the protection of riversides, wetlands and the coastline, as well as to deal with floods and their effects on the territory; or to establish the rules for the location of commercial, business and industrial areas; or to lay out the territorial criteria in relation to mobility and transport infrastructure. In the field of climate change mitigation, it is noteworthy the Sectorial Territorial Plan on Riversides as it establishes the criteria for the uses of the land surrounding the riversides bearing into account the risk of floods.



• An inter-institutional body for decision-making: the Basque Territorial Planning Commission is composed of representatives of all the administrations involved in territory policies (State, Region, Provinces and Municipalities) and its opinion is required in the procedures to adopt territorial or urban plans.

The Territorial Planning Instruments aim to control and limit the expansion of towns and cities by concentrating the growth on the existing city areas. We promote the regeneration of urban areas; high densities and a mix of uses; the use of public transport. We intend to explore the real impact of concrete examples of smart cities in order to launch a new policy-making in this field.

So far, the achieved results were:

• The resilience of the territory increases.

• The improvement of the governance in the territorial planning.

• The agents involved in the spatial planning are more concerned with the territory and its management from a climate change perspective.

Some of the challenges encountered when implementing the actions were:

• Many administrations involved in the decision making process.

• Many sectors involved and sometimes with conflicting interests.

• Public participation is required together with awareness rising efforts.

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SÃO PAULO • BRAZIL

Serra do Mar and the Atlantic Forest Mosaics System

The largest area of preserved Atlantic Forest in Brazil is located in the state of São Paulo in the territories of the Serra do Mar State Park and its three mosaics: Paranapiacaba, Jureia-Itatins and Jacupiranga. The Serra do Mar State Park alone consists of 332,000 acres in 24 municipalities of São Paulo, what contributes to climate regulation, promotes the quality of water supply and provides shelter for mammals, amphibians and reptiles, and half of the bird species of the biome.

The illegal occupation and consolidation of these areas brought harm not only to the preservation of the Park, but also the resident population. The so-called "bairros-cota" were built in one of the narrowing points of the Serra do Mar, therefore, one of the weakest parts of the forest, with high geotechnical risk. In over 40 years of occupation, there has been a worsening of environmental impacts – with deforestation, exploitation of species and pollution of the Cubatao River. At the same time, the vulnerability of families reached alarming rates, especially considering the precariousness of many households and the risk of serious accidents.

This programme is both a social and an environmental recovery project, aiming to eliminate risk areas by working with the community and promoting the conservation, sustainable use, and environmental restoration of the biome Serra do Mar.

In December 2010, a contract was signed between the Government of the State of São Paulo and the Inter-American Development Bank (IDB) to carry out the Serra do Mar and Atlantic Forest Mosaics System Social and Environmental Recovery programme. Their guidelines, however, were based on the work that has already been carried out since 2007, especially the registration of families of bairros-cota in the municipality of Cubatao, conducted by CDHU (Housing and Urban Development Company of the State of São Paulo), and the survey of geotechnical risk presented by the IPT (Technological Research Institute).

The State Secretariat for the Environment's tasks are carried out by the Forestry Foundation, the State Secretariat for Housing's tasks are carried out by CDHU, and the Planning and Regional Development Secretariat's tasks are carried out by its Programme Management Unit.

Components of the Project:

• Protection of Environmental Conservation Units: Environmental restoration and sustainable use of the Serra do Mar State Park, the "Juréia-Itatins Mosaic" territory, and Marine Conservation Units and their surroundings, all in the State of São Paulo.

• Social investment in the Serra do Mar: Relocation of homes which are in risk areas, urbanization of homes so that they don't face risks, community empowerment (Centre for Solidarity Economy and Local Development; Community Communication – such as the ComCom project, Art in the Cotas; Cultural and Gastronomic Fair of Bairros-Cotas; Viva Cota Project); and training of community agents.

• Monitoring of Fully Protected Conservation Units: involves training and equipment provision to the Environmental Police (PMA) for the implementation of surveillance activities in the terrestrial and marine Conservation Units, as well as for the development of a monitoring system.

This is the first programme in the state with a multi-sector approach financed by a development bank. Among the specific challenges

for the implementation, stand out issues about land and environmental constraints of the São Paulo coast, such as:
• land issues that delayed the start of housing construction , both in the PESM and in other protected areas.
• mismatch between the actions of environmental recovery and the removing families actions in Cubatao.
• difficulties to find suitable lands for housing developments in the city of Cubatao.
• resistance of some families for voluntary resettlement which demanded greater attention from the Social Team.
• delay in obtaining licenses from the São Paulo and the Guarujá City Halls for building social equipment.
• delay with architectural issues of Cubatao Botanical Garden due to local environmental conditions.

Achieved results:
• 4,000 families already relocated to safer areas, remaining 2,700 families yet to be assisted.
• Forest recovery of vacated areas and eradicating 200 hectares of exotic species.
• Building protection infrastructure deployment and public services inside conservation units.
• Implementation of management plans for Serra do Mar Park and protected marine areas.
• Procedures on environmental monitoring to prevent the reoccupation of risk areas.

Booklet describing the project: http://www.ambiente.sp.gov.br/en/files/2015/04/Serra-do-Mar-and-the-Atlantic-Mosaics-System-Project-EN.pdf
Short video on the project: https://www.youtube.com/watch?v=_CPcyevQevM

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RABAT-SALÉ-ZEMMOUR-ZAER • MOROCCO
Territorial plan against climate change

The Territorial Plan Against Climate Change (PTRC) is a pilot project conducted in February-March 2010 in the Moroccan central plateau. It was launched as part of the National Human Development Initiative for the fight against poverty and social exclusion (INDH), and it is characterized by three relief units: the high country, topographical middle, and lower levels and the coastal plateau. The region has substantial ground water and encompasses the green belt of Rabat Temara and forests of Dar Salam, which protect the land from erosion.
The PTRC is used to identify mitigation, adaptation or transverse projects, carried out either by public or private regional actors, and classified by respective sectors. Especially the mitigation projects addressed causes of global warming via emissions of GHGs and in regards to either energy production (hydro and micro-hydro, solar thermal, solar photovoltaic, wind and offshore, biomass, biogas) or energy consumption (low consumption lamps, low carbon buildings, optimization of public lighting, energy audits). The PTRC recorded primarily regional mitigation projects of the National Energy Strategy 2008, led mainly by public actors. Some projects also relate to means of transport, inclusive of public transport development, suburb transport arrangement, city cycling, efficient driving, traffic regulation, etc.
The Region's economy relies mainly on agriculture, tourism, crafts, industry, trade and services. Agriculture is based on the exploitation of a fairly well-balanced agro-sylvo pastoral system. Forest activities engage directly or indirectly about 11% of the riparian forest assets via reforestation, nurseries, cork work etc. Textiles and leather are major industries in the region, providing two-thirds of exports as well as employing two thirds of the total regional workforce.
Due to its geographical location, the region offers a variety of natural sites: the Bouregreg valley, the string of beaches, forests and Maâmora of Korifla and Dayat Rommi. Surface water is regulated via dams that play a key role in meeting the needs for drinking water, industry and agriculture.
Manufacturers try to reduce their energy consumption by modifying their industrial processes; our projects aim to recover and upgrade the heat emitted by industrial processes and control the energy performance.
Mitigation projects contribute via reducing waste and methane emissions from landfills or treatment plants, as well as via wastewater, and focus on carbon storage by forest development. They are based on energy optimization in all its forms and on the development of green spaces. In the agricultural sector, there is concerning carbon storage, for example through the development of production plantations and the processing of agricultural practices (deep plowing, bare soil fallow).
Public and relevant professional awareness is gradually shifting toward principles of zero consumption. Adaptation projects aim to prepare people for the consequences of global warming, to reduce vulnerability to impacts of climate change and to avoid environmental damage of material, financial and human nature. Some projects also focus on social monitoring of human exposure to climate, via infrastructure restrictions in risk areas for floods, rising sea level, fires, etc., as well as via development of regional epidemiological surveillance systems.

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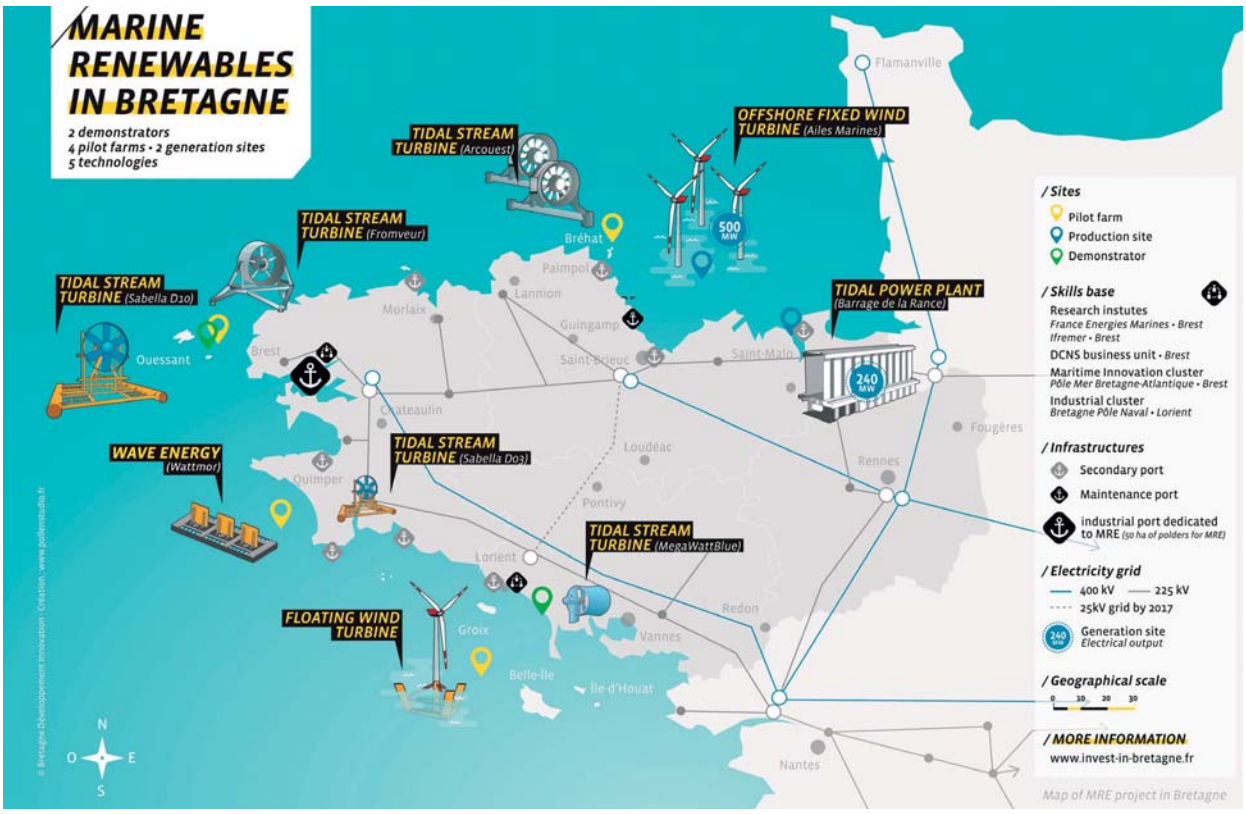

BRETAGNE DÉVELOPPEMENT INNOVATION - CRÉATION : WWW.POLLENSTUDIO.FR

BRITTANY • FRANCE

The coastal area of Bretagne: Planning via dialogue

Situated between the English Channel and the Atlantic Ocean, the peninsula of Brittany is the Western point of Europe. With a littoral of 2700km, of which a third is metropolitan, Bretagne is a region historically directed to the sea. Its coast accommodates a multitude of maritime activities, traditional or new, and experiences a strong demographic and deep-rooted pressure that demonstrates what is at stake at country planning. Furthermore, its coastal area is more exposed to the effects of climate change than others: sea level rise, risk of earthquakes, and extreme weather events.

Climate change adaptation hence constitutes a major objective for Brittany, and territorial planning a way to address it both in sea and land. The sea is equally a source of solutions for climate change mitigation: tidal forces and coastal wind are energy resources that will form the support of an energy mix without GHG emissions.

Faced with a substantial pressure at the coastal zone and with ecological sensibility in this territory, the regional council established a **Charter of the Costal Environment** ("Charte des Espaces Côtiers), which can be signed voluntarily. The Charter identifies the future challenges for the coastal area of Brittany, of which climate change has initiated a regional dynamic of an integrated management of the sea and coastal land. The Charter identifies ten actions, of which one refers to climate change adaptation.

Its implementation expects a collective mobilisation around a maritime ambition and shared coastal areas. With this aim, since 2009 the regional council and the state have implemented a regional dialogue, which takes place through the **Regional Conference on the Sea and the Coast**. With nineteen reunions, the Regional Conference unites regional communities, civil society, private and non-governmental actors and academia to share and discuss the challenges ahead. The Conference aims at sharing experiences and plays a particular role for territorial planning and for developing maritime energy resources. The Conference helps the identification of favourable areas for sea-based wind farms, hydraulic parks or wave-based energy. This approach has helped improving the acceptance of maritime energy sources. The co-existence of various activities, such as fishery, and the ecological impact of these projects form the heart of member discussions during the Conference.

At the local scale, the regional council has implemented tools for the **Integrated Management of the Coastal Zone** (GIZC). This initiative offers the locals an opportunity to create a local project through the coastal management initiative and through an inclusive governance form. Local constituents of the coastal zones have been invited to respond to the project's call, and from now on, all coastal zones are included.

The GIZC resonates with the **Scheme of Territorial Coherence** (SCOT), a regulatory tool of territorial planning implemented by communalities. SCOT is a territorial project that also integrates the thematic area of climate in its urban orientation and town planning.

Within the challenges encountered when implementing the actions it is possible to mention the coordination between the number of partners involved, and the fact that the coastal zones are diverse and specific (at least in their geomorphology) and the geographical parameters of SCOT and GIZC are not necessarily identical. Creating a dialogue and an awareness of challenges posed by climate change is hence an essential task and permanently led by the regional council. For the regional council, the task is thus to

permanently connect the local communities and the local actors, to integrate its climate change priorities into local project management and to foster a dialogue.
The creation of new activities at the coastal zones, such as maritime energies, and the modification of its geographical nature and maritime ecosystems due to climate change, will modify existing socio-economic circumstances. Knowledge and dialogue are hence two vital and indispensible ingredients.
Among the achieved results of these initiatives it is possible to mention:
• The creation of the Conference of the sea and the coast recognised at the national level.
• The promotion of a regional dialogue, which allows an identification of zones favourable to various maritime energy sources.
• The establishment of hydraulic energy sources in two locations within Brittany.
• The first wind offshore wind park, planned in North Bretagne for 2019.

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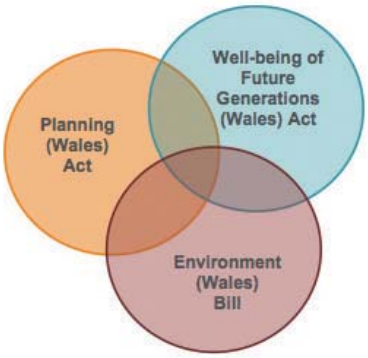
WALES • UNITED KINGDOM

Legislating for sustainable development goals to secure the long term well being of Wales



In 1998 Wales became one of the first countries in the world to have sustainable development written into its founding legislation. Since then much progress has been made to making Wales a more sustainable nation. To further advance sustainable development in Wales it was recognised that a more coherent legislative footing was needed to provide stronger governance for the long term.
In 2011 the Welsh Government committed to legislate to make sustainable development the core principle that drives public bodies in Wales and establish a new statutory Future Generations Commissioner for Wales. Over a four-year period, stakeholders, businesses and politicians have been involved in an exercise to agree a new legal framework for sustainable development in Wales.
Three key instruments enable Wales to develop sustainably:
• A clear idea of aims and key guiding principles.
• A clear picture of the natural resources, the risks they face and the opportunities they provide.
• An efficient process that ensures the right development is located in the right place to make it happen.
The current Welsh Government legislative programme contains landmark pieces of legislation that further enshrine Wales' commitment to sustainable development and strengthen efforts to tackle key intergenerational challenges like climate change.
The Well-being of Future Generations Act places sustainable development as the central organising principle of the public sector in Wales. It sets ambitious and long-term sustainable development goals for a prosperous, resilient, healthier, more equal Wales with cohesive communities a vibrant culture and global responsibility. These are a subnational articulation of the UN Sustainable Development Goals. In putting these goals into law, it also establishes the role of a Future Generations Commissioner for Wales and aligns accountability against the achieving of the goals as the public sector's overarching purpose.
The Well-being goals are:
Goal 1 -A prosperous Wales
Goal 2 - A resilient Wales
Goal 3 - A healthier Wales
Goal 4 - A more equal Wales
Goal 5 -A Wales of cohesive communities
Goal 6 - A Wales of vibrant culture and a thriving Welsh language
Goal 7 -A globally responsibly Wales
These goals were developed through a national conversation exercise called "The Wales We Want" mirroring the "World we Want" exercise conducted by the United Nations. These goals will be monitored through a new set of national indicators and milestones to outline a long-term path to achieve the "Wales we Want by 2050".
Climate change is embedded into the seven well-being goals with a particular emphasis of developing a low carbon economy for Goal 1 "A prosperous Wales" to mitigate climate change, and adapting to climate change in Goal 2 "A resilient Wales". The primary legislation that embeds sustainable development and strengthens the framework for climate change action through the application of the ecosystems approach and the legal requirement for carbon budgeting is particularly innovative.
The law also establishes a sustainable development principle to drive transformational change in the decisions of public bodies, and provides a blueprint for action in the private sector. Over 350 organisations are signed up to a Sustainable Development Charter.
The Environment Bill puts in place legislation to plan and manage Wales' resources in a sustainable and joined-up way. In doing so, it sets out requirements to manage, use and enhance Wales' natural resources sustainably, enshrining the ecosystem approach from the UN Convention on Biological Diversity which is essential to ensuring the resilience of ecosystems and tackling climate change. It also establishes the legal framework for not only statutory emission reduction targets, but also carbon budgeting towards the goal of at least an 80% reduction by 2050. Amongst other things, the Bill strengthens action on waste thereby further supporting the move to a more circular economy.
The Planning Act modernises Wales' planning process with sustainable development at its centre, ensuring that planning decisions consider social, economic and environmental aspects.
This legislation demonstrates how the key international work streams covering the UN Sustainable Development Goals, UN Framework Convention on Climate Change and the UN Convention on Biological Diversity can be integrated at the subnational level to drive real change. The legislation is also already gaining international recognition.
The UN recently praised the Well-being of Future Generations Act saying: "The Wales Future Generations Act captures the spirit and essence of two decades of United Nations work in the area of sustainable development and serves as a model for other regions and countries... We hope that what Wales is doing today the world will do tomorrow. Action, more than words, is the hope for our current and future generations."

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AZUAY • ECUADOR

Participation and shared responsibility

Azuay has a vision for a synergetic rural-urban nexus in its territory. Territory Vision 2019 aims to integrate the Southern region of the country, promoting a social model of participatory, competitive and inclusive production based on the territorial capacities, in a healthy environment that respects the rights of the nature, from a radical democracy perspective that democratises access to opportunities. The main objectives of this vision are:

• **Social Participation:** To pursue the permanent engagement of the population in decision-making and therefore in the definition of public policy. The main goal is to generate public participation to set spaces of relation with the state, enabling the definition and proposal of their demands, prioritising these during implementation.

• **Rights and Freedoms:** To unrestrictedly respect civil and political liberties, strengthen organisations for citizen expression and opinions, focusing on their daily and strategic realities, positions and situations.

• **Social Organization:** To build social organisations, strengthening and promoting social organisation in all citizens-built and legitimate spaces. It allows citizen mobilization towards achieving common objectives, as well as the potential of organizing state interventions through public policies.

• **Social Production Model:** To build through participation a common model of transition towards economic development to achieve the Good Life (Buen Vivir), allowing us to develop public investment, to generate models of self-sustainability of that investment through the socialisation of the production. This requires the establishment of an associative support network among large companies, small and medium businesses and the State for the implementation of business models.

• **Eco-Democracy:** To create a democracy in relation with nature, to ensure the respect for the established constitutional rights and the sustainable use of renewable and non-renewable resources.

• **Territory and Institutionalisation:** To promote decentralisation and resource management as a strategy to change the balance of political organisation, balancing power between the centre and the periphery.

This construction process is only possible through the implementation of the Participatory Planning System through the People's Provincial Parliament and the Cantonal and Community Assemblies as new instances for participatory governance and advocacy by the social base. Secondly, by developing the primary sector of the economy through the network of productive models, shifting the transportation road matrix to asphalt, the new sprinkler irrigation systems and waterproof spray conveyance, and also through the promotion of the provincial tourism. Thirdly, we can cite the management models that enable to explore the constitutional competencies and design joint projects for economic development, such as the Eco-manufacturing facility.

This planning tool allows us to structure in an organised and systematic method the strategic components for the Provincial Government intervention, and that is built on the ideological framework of the administration, as well as on its constitutional and legal competencies. The components are therefore organized through public policies to which public administration programmes and projects shall be integrated. Pursuing a permanent participation of the population in decision-making and therefore in the definition and implementation of public policy is crucial. This involves developing public management and governance with a deliberative model that creates systematic opportunities to govern with the population, such as participatory budgeting, participatory planning, citizen assemblies, popular parliaments, vulnerable groups' agenda, among others; seeking the resolution of social conflicts, transparency and citizen control. The Multiannual Government Plan (2014-2019) was built following this model and can be found online [http://www.azuay.gob.ec/imagenes/uploads/File/PLAN_PLURIANUAL_2014.pdf].

We encourage the establishment of Provincial Parliaments, with the participation of territorial representatives from the communities, neighbourhoods, counties and local governments in the province, instance in which public policy proposals are discussed and defined before being submitted for approval to the Provincial Council, thus settling a system by which people participate directly in the territorial government. The progresses and development are monitored in these parliaments, ensuring accountability and social control of the public management.

Accountability is not only a duty of the authorities (articles 92 and 93 of the Organic Law of Citizen Participation, and articles 9, 10 and 11 of the Organic Law of Civic and Social Control Participation Council), but is an ongoing process of feedback and exchanges of our actions. Its goal is to drive processes that ensure representation and decision-making by all social sectors. An internal mechanism for evaluating, monitoring and exchange is based on a system of government by results, including technological tools and spaces for internal assessment, both understood as means to strengthen the quality of the actions of our staff and the institution in general.

Lessons learnt through implementation:

• Irrigation policies: include mechanisms for community action and ownership of water. This demands a strong communication component, awareness-raising of the importance of this heritage, organization strengthening, capacity building in "Management, Operation and Maintenance of Irrigation Systems", addressed to systems' users towards an organized, technical and economic water irrigation use. A rights-based approach also empowers users and generates leadership in access and management of water resources such as through request, grant, conservation and coordination.

• Roads: understood as a mean of urban-rural connectivity that allows integration and social-economic exchange in the territory. Our management model has sought to strengthen the smaller government units,

the juntas parroquiales in a collective and coordinated effort to transfer the competencies to rural roads through resources obtained by a territorial shared responsibility policy collected in a solidary road tax in the province. This requires joint planning, monitoring and evaluation between the provincial and local government. In parallel, it was promoted the creation of a public company that supplies basic asphalt materials for road construction under a non-commercial logic, rather under solidary economy principles.

• Azuay Women Agenda: pursues social and gender equity through a series of actions as the diagnosis of gender inequalities, support to women-specific projects, pursuance of gender equity in the government staff. It was established as a forum to manage solutions through public policy. A dynamic Provincial Committee was settled with the representation of women from all 15 counties in the province of Azuay, who mobilise the Agenda in each local community. Currently, the document Women Agenda was produced with input collected in the discussions held in the different cantons of the Province, and it seeks to integrate the Agenda to policies, programmes and projects of different levels of government in the territory. In that regard, at the institutional level, the Gender Equity Unit is under the coordination of the General Department for Social, Gender and Educational Equity, fostering a greater dynamism of the Women Agenda and creating a space for active governance.

The main challenges for the urban-rural nexus in our experience are based on three constraints:

• The centralism, which involves setting the national policy vision bases on the context of the capitals that do not take into account the diversity of conditions and realities in the territory, particularly in rural areas.

• The inter-agency coordination, particularly with the various government levels linked to the development of the territory (local and subnational), where often political leaders do not encourage the vision of joint and shared responsibilities, neither the interdependence between urban and rural areas.

• The economic autonomy of provincial governments considering the legal limitations to generating and raising their own resources, therefore it finds a high dependence on funding from central governments that can be influenced by party and political views.

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FATICK • SENEGAL

The Regional Integrated Development Plan

Region Fatick has a Regional Integrated Development Plan, which focuses on the rural-urban nexus. The plan vision sets regional strategic guidelines, within a generation time (25 years), on the optimal and rational use of the territory, taking into account the availability of resources and its competencies to fulfil immediate and future needs of the entire population. The plan sets 5 main objectives:

• Increased production and income from the productive sector.

• Services development and provision (water, transport, telecommunications, energy, etc.).

• Sustainable management of natural resources, environment protection, mitigation of climate change effects and improvement of the living environment.

• Improved accessibility to basic social services.

• Improvement of living conditions, especially with a focus to the most vulnerable groups.

The main tools for the implementation of the plan are:

• A Steering Committee, which includes all local and territorial authorities and communities in the Region.

• A Technical Committee, which includes the entire system of technical services.

• A Programme Management Unit based in the Region and responsible for the concrete implementation of projects.

• Geographic Information Systems - GIS that allows the appropriate monitoring and evaluation of the program.

The final document was forwarded to the president of the Regional Council, for adoption by the Council members. The adopted document was then sent to the governor of the Region for approval. As part of the PRDI implementation, notorious progress was achieved in the following areas:

• Territorial Planning: all 40 local communities have Local Development Plans for rural areas and Community Investment Plans for urban areas. These plans were build on the existent complementarities between city and rural areas. In the action plans, integrated activities were developed, exploring the synergies of a harmonized planning and contributing to avoid duplication and exclusions.

• With regards to food security, the PDRI supported the aspect of connecting the urban actors to its respective rural areas to stimulate reflection on the food security issue. Particularly considering food production as highly dependent on the rainfall regime, a regional development program for irrigated agriculture is promoted in the various areas of the Region.

• The problem of employment with a view to the rural-urban nexus is also foreseen by the PRDI, particularly, the intensive migration of rural youth to the cities. To address this problem, we developed a programme called Scholarship on Exchange for Employment, which enables young people from rural areas to create or consolidate jobs through financial contributions from the Region and partners, including Poitou Charentes (France).

The mains challenges faced in the implementation of this plan are connected to physical/geographical conditions (irregular rainfall levels, increasing salinization and soil poverty), financial aspects (low budget of local authorities responsible for urban development), institutional issues (precarious equipment and tools).

Local communities (40 in total) have autonomy and competencies for management. With that in mind, each of them count with a deliberative assembly and also receive budget contributions for promoting integrated development, ensuring territorial cohesion. The Community Based Organisations are associations of people composed of all segments of society and working for grassroots development. Technical Services team provides expertise and guidance to the development initiatives.

Up to this moment, the private sector is not deeply involved in the programme. Regional officers and local civil society are the anchors of the programme. Nevertheless, the regional authorities are becoming increasingly open to consider public-private partnerships.

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RIO DE JANEIRO • BRAZIL

The Strategic Plan for the Metropolitan Region

The Strategic Plan for Rio de Janeiro Metropolitan Region (RMJR), which envisages intervention for both urban and rural areas, envisages to establish a model for the Metropolis to be made available in the short and medium terms (estimated for the next 15 years), including the development of strategies and priorities for structured and integrated actions, in the context of metropolitan functions and with a supra-municipal character.

As a general goal, the need for capacity building in different parts of the territory, particularly those responsible for providing services and generating new urban dynamics. Such initiatives contribute to promote the improvement in new areas' environment, allowing the diversity of land use and occupation, the reduction of mobility and connection costs, the control of urban land prices, the disciplined urban, through the optimisation of the infrastructure networks on transport, communication and provision of sanitation services. Hence, three themes of metropolitan public policies emerge as specific objectives for the integration of future positive visions for the RMRJ: valuation and recognition of key places in the various municipalities of the RMRJ; connectivity; and overcoming obstacles and constraints.

A proposal for Rio de Janeiro metropolitan planning set the following core concepts as priority:

Core Concept 1 - Accessibility and Mobility: the absence of an integrated approach for the urban transport and mobility systems, combined with the lack of understanding of the influence that the productive restructuring processes exercise in the mobility forms and flows, has resulted in inappropriate designed projects.

Core Concept 2 - Centralities and Connectivity: the implementation of the ring road (Arco Metropolitano), which connects far ends of the RMRJ, highlights some predictable aspects, consequence of its inclusion in the metropolitan landscape by connecting the necessary federal highways in Rio de Janeiro. Actions and projects that establish barriers and transitions of factors of expansion must be considered priority, considering the metropolitan dynamics, as well as the protected and rural areas in the region. In addition to the structural nature, these actions may contribute to the decentralisation in the metropolis.

Core Concept 3 - Metropolitan Character Facilities: it is necessary to observe the demands for new metropolitan character facilities/equipment, whether for health, education, transport or leisure, as well as their potential in becoming new urban structuring elements.

Core Concept 4 - Environmental Sanitation and Integrated Urbanization: the selection of areas of intervention with a view to Environmental Sanitation and Integrated Urbanisation, combined with the respective treatment of effluents.

Core Concept 5 - Economic Restructuring: the economy of RMRJ has been recovering from a long period of decline and stagnation, especially considering the last four decades.

Core Concept 6 - The Natural Environment: inserted in one of the sectors of the Atlantic Forest of unique biodiversity, RMRJ displays a wide range of natural landscapes. However, the conservation and preservation of this rich diver-

sity is being severely compromised by human activities, expressed by the increasing number of species of flora and fauna vulnerable or threatened with extinction, or yet the intensive pollution of river basins and watersheds. In order to enable preventive actions that encourage environmental preservation in a metropolitan scale, it is considered a priority:

- the preservation and conservation of the Serra do Mar biodiversity corridor;
- the preservation and conservation of ecosystems;
- the recovery and conservation of the Guanabara and Sepetiba;
- the definition of zones restricted to urbanisation, given the predisposition to geological flooding and contamination risks;
- the proper and efficient management of solid waste;
- the regulation of land use and occupation;
- the definition of guidelines that express the metropolitan aspect in public services of common interest;
- the recovery and conservation of air quality and noise control;
- planning and proposition of tools for forecasting and reducing risks to weather accidents;
- the assessment of vulnerabilities, provided adequate adaptation or resilience solutions, as strategies for the preservation of human life, the natural and built environment.

Core Concept 7 - Management and Planning of the Metropolitan Region: it is being discussed not only the strengthening of the management competencies and its location, as well as the very decision-making framework – a new governance profile, in which public policies are focused in regulation, equity and social promotion, enabling the civil society engagement in activities normally carried out by the private. The most successful instruments are those based on participative and democratic collegiate mechanisms, capable of resolving conflicts of interest, proposing efficient and effective solutions, whereas promoting development with an equitable provision of public services.

The Metropolitan Government Integration Chamber is the body in the Rio de Janeiro State Government structure, created on August 11, 2014, that resumes metropolitan planning and management actions, culminating in the preparation of the Regional Strategic Plan, which foresees interventions to both urban and rural areas, located within the RMRJ. Its structure consists of the Metropolitan Council, composed of the Rio de Janeiro State Governor and the mayors of the 21 municipalities that make up the metropolitan region (RMRJ), together they take decisions on integrated policies, programs, actions and priorities that focus on the metropolitan territory, and have as main duties to:

- propose a new legal and institutional framework for RMRJ;
- consolidate a new governance model for the region;
- mediate the cooperation between different government levels in the region.

The Metropolitan Strategies Committee and the Metropolitan Management Steering Group, provide advisory, organisational and operative support to the work of the Chamber, being the Metropolitan Management Steering Group responsible for the coordination and monitoring of the Strategic Plan for Metropolitan Development, the Transport-Oriented Plan for Development Plan Development Guided by the Transportation, the elaboration and assembly of the regional Cartographic Charter and the implementation of the Geographic Information System.

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RIO DE JANEIRO • BRAZIL

Green Tax on the Circulation of Goods and Services (Green ICMS)

The State Secretariat for the Environment (SEA) and the State Centre for Statistics (CEPERJ) created a the Green Tax on the Circulation of Goods and Services (Green ICMS) to compensate municipalities in the state of Rio de Janeiro that preserve forests and implement environmental investments with spill over benefits.

Created in 2007 through State Law No. 5100, the Green Tax on the Circulation of Goods and Services (Green ICMS) has two main objectives:

1. To compensate municipalities for restricting the use of their territory, especially in the case of protected areas of nature and water supply sources.
2. Reward municipalities for their environmental investments, such as treating sewage and properly disposing waste.

The initiative consists of the following criteria: 45% for protected areas; 30% for water quality; and 25% to solid waste management.

The transfers are proportional to the goals achieved in these areas: the better the indicators, more resources local governments then receive. Each year, indexes are recomputed, giving an opportunity for the municipalities that invested in environmental conservation to increase their participation in the transfer of tax revenues.

The Environmental Conservation Final Index (IFCA), which indicates the percentage of Green ICMS that it is up to each municipality is composed of six thematic sub-indices with different weights:

- Sewage Treatment: 20%
- Waste Disposal: 20%
- Remediation of dumps: 5%
- Supply Watershed: 10%
- Protected areas (all protected areas): 36%
- Municipal protected areas (only municipal): 9%

To qualify to receive the funds, municipalities must have a Municipal Environmental System, composed of an environmental policy executing agency, a board and an environment fund, as well as an environment patrol.

Only in 2014, the Green ICMS transferred R$ 195 million (US$ 73 million) to Municipalities based on environmental criteria. The initiative has contributed to successful achievements, such as ranking in first place in the conservation of the Brazilian Atlantic Forest, and being the only State in the country to properly dispose all its waste, having closed all dump sites. In 2014, the Municipalities that most benefited from the Green ICMS were: Silva Jardim, Cachoeiras de Macacu, Rio Claro, Miguel Pereira and Quissamã.

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The nrg4SD (Network of Regional Governments for Sustainable Development) is a network of subnational governments that shares common interests in climate change, biodiversity and sustainable development. It was established in 2002, at the World Summit in Johannesburg, and today has 50 members from 26 countries. The nrg4SD is the only international network on sustainable development matters representing solely subnational governments.

We promote understanding, collaboration and partnerships in sustainable development, and seek greater international recognition of subnational government's important contributions towards sustainable development.

For more information about us,
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